Journal

OF THE NATIONAL ASSOCIATION OF CHIROPODISTS

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VOL. 45, NO. 10 OCTOBER, 1955

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OF THE

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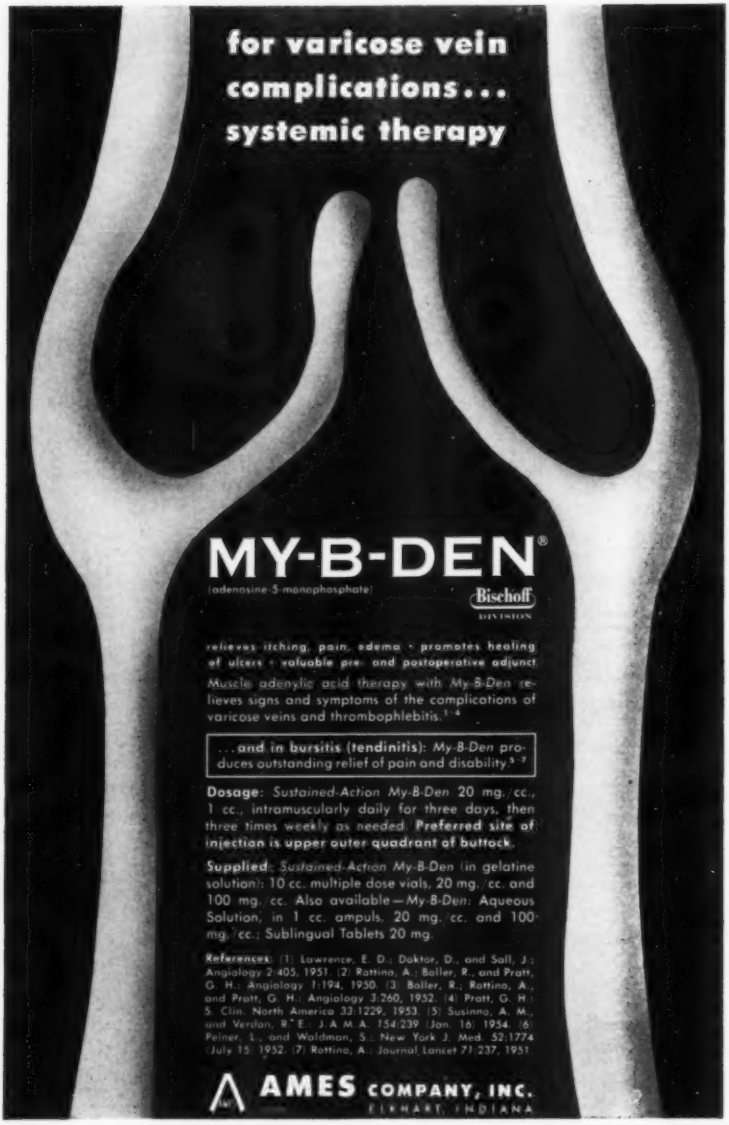
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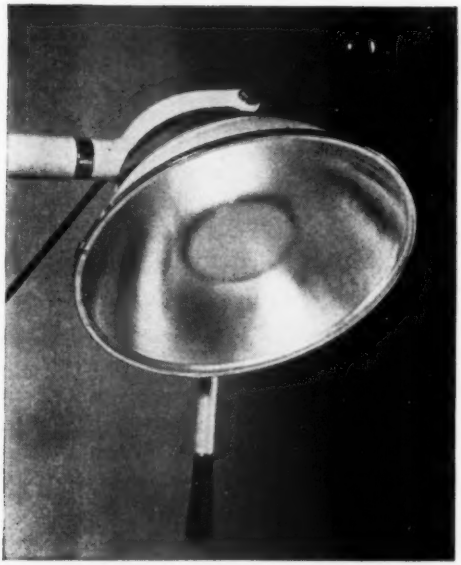

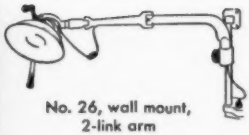

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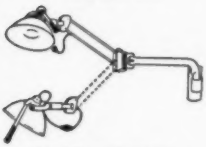

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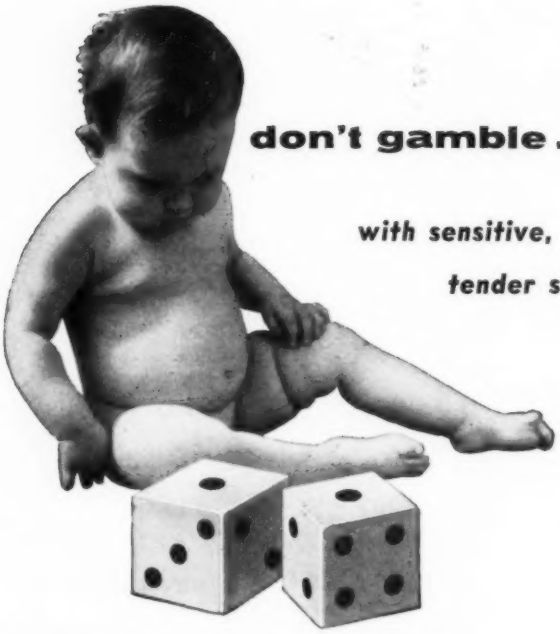

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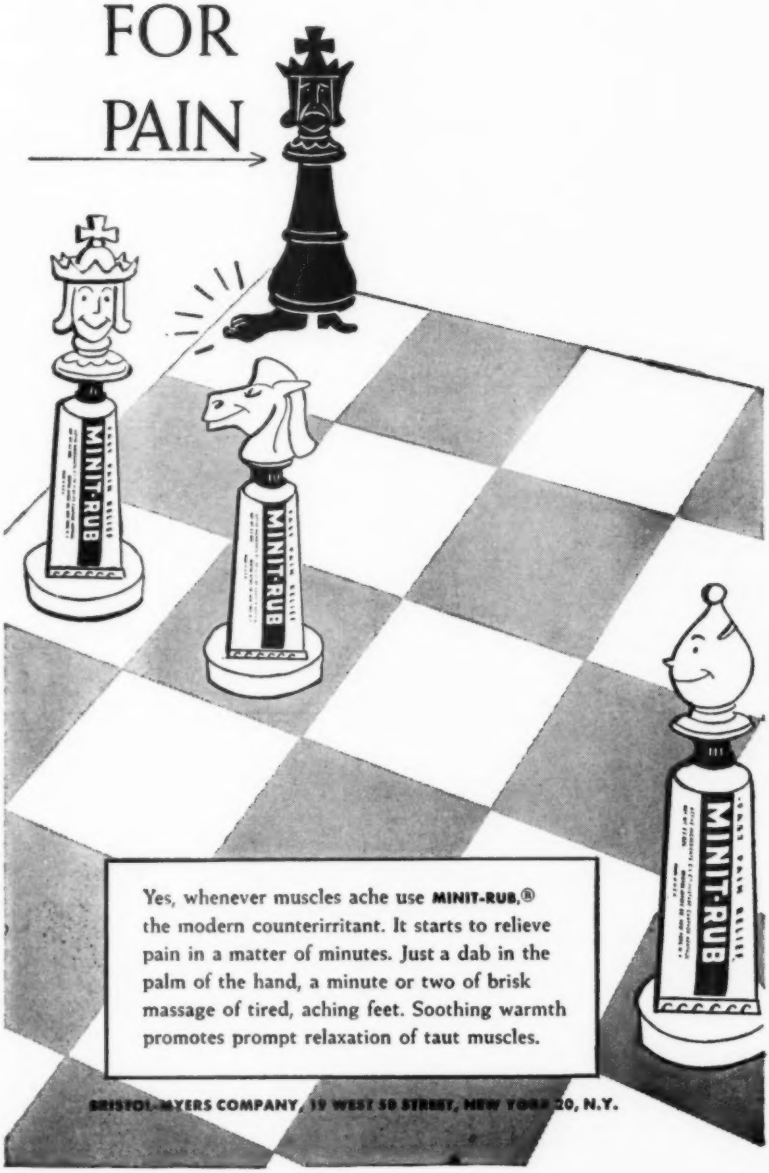

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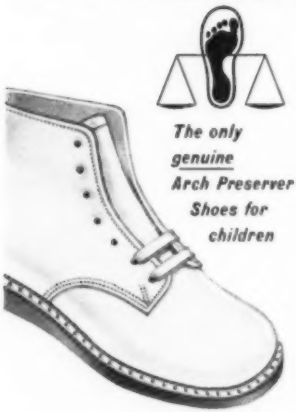

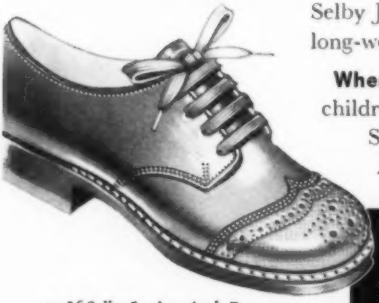

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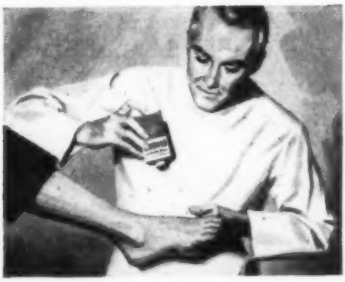

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THE
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THE OFFICIAL PUBLICATION OF THE PROFESSION

VOLUME 45 OCTOBER, 1955 NUMBER 10

PHYSICAL AGENTS USEFUL TO CHIROPODISTS*

DONALD J. ERICKSON, M.D.
Rochester, Minn.†

As KRUSEN[1] has stated, recent developments in the field of physical medicine indicate that beyond all doubt this rapidly growing branch of medicine has now become firmly established as an important medical specialty. For centuries simple physical remedies have been known to give symptomatic relief, to promote general health, to alleviate stress and to engender a sense of physical fitness and well-being. But the systematic application of physical agents is distinctly a twentieth century innovation.

Physical medicine includes the employment of heat, water, light, massage, exercise and electricity, with or without the aid of mechanical devices, in the diagnosis and treatment of disease. Interest in this field, already stimulated by the need for rehabilitation which arose during World War I, was furthered by the similar need associated with World War II. Greater understanding of the application of physical agents is necessary at this time because of the high current incidence of accidental injuries, the increase in social economic problems in relation to the aging population and the augmented proportion of chronic degenerative diseases encountered in present-day medical practice.

During the past ten years, the opinion as to what constitutes good medical practice has changed. There is a growing realization that the diagnosis of disease and the application of lifesaving measures during the active phases of illness are not enough. Rusk[2] has called for a concept of medical management which "takes the patient from the bed to the job." He has accepted for this kind of practice the name "the third phase of medical care." It is a dynamic type of rehabilitation applied during convalescence to prevent chronic invalidism. The term "rehabilitation" alone is broader and is used to include all medical, psychological and social services whereby a person recovering from disease or injury

*Delivered at the Thirty-Ninth Annual Convention of the National Association of Chiropodists, Chicago, Ill., August 19, 1951.

†Section of Physical Medicine and Rehabilitation, Mayo Clinic.

is prepared physically, mentally, socially and vocationally for the fullest possible life compatible with his abilities and disabilities. It implies the employment of physical medicine, psycho-social adjustment and vocational retraining.

The physician who specializes in physical medicine is actually applying to clinical practice a basic knowledge of bio-physics. This specialist is now known as a "physiatrist." The technical workers who apply the agents to the patient are known as "physical therapists." One of the outstanding contributions to the development of this field has been the Baruch Committee on Physical Medicine, which began its work in 1943. Funds were made available by the famed elder statesman and humanitarian, Bernard M. Baruch. He had been impressed with the possibilities of physical medicine by his father, the late Dr. Simon Baruch. The committee, having finished what it designed to do, dissolved in 1951.

In passing, mention may be made of the three great physical weapons of war which have now been converted to medical uses: Radar, which is said to have won the battle of Britain, is the new, promising physical agent for heating tissues in the method of treatment known as "microwave diathermy." Atomic energy, which helped to defeat Japan, is being utilized to make radioisotopes for medical research, and also to aid in treatment of certain diseases. Finally, sonar, which aided in allied supremacy on the seas, is being investigated as a new therapeutic agent.[3]

Some of the simpler technics can be applied in the office of the chiropodist or in the patient's home. Other technics, especially those requiring elaborate equipment, necessitate trained technical assistance and still others demand a medically trained specialist for proper application.

Equipment employed in physical medicine should be approved by the Council[4] on Physical Medicine and Rehabilitation of the American Medical Association. The council has the following aims and purposes: First, it protects the medical profession, and thereby the public, against inefficient and possibly dangerous apparatus and against misleading and deceptive advertising in connection with the manufacture and sale of devices for physical therapy. Second, it disseminates such reliable information as it possesses or may acquire, and stimulates instruction to aid the practicing physician in choosing sound methods of physical therapy and rehabilitation. Third, it acts in an advisory capacity to the profession and to the public in all matters concerning physical medicine.

Heat Aided by Water and Light

The primary physiologic effects of heat are relaxation of muscles, diminution of pain, increase in flow of blood and, within certain limits, increase in oxygen exchange and in removal of waste products from the tissues. Heat accelerates metabolism. Preheating augments the functional capacity of muscles. Heat can be one of the most valuable physical agents but also it can be misused.

In general, there are three different methods of heating tissues:

1. In conductive heating, the heat is transferred by direct continuity as it is when hot water bottles or electric heating pads are used. Other methods of employing conductive heating are either less familiarly known or require considerable apparatus.

Hot paraffin may be used in treatment of a round portion of the body such as a knee, hand or foot. The main advantages of hot paraffin are

that it is readily available, that it holds the heat and that is entirely surrounds the part. The paraffin is melted in a double boiler and is allowed to cool until it has a thick scum over the surface. Then it is applied to the part. It is particularly advantageous for home treatment in localities where electricity is not available.

Contrast baths are another effective way of treating the hands or feet. The method is alternately to immerse the part in hot and in cold water. Studies made by Martin[5] indicate that a favorable procedure, from the standpoint of vasodilatation, is initially to keep the part immersed in hot water for ten minutes and then to employ the alternate immersion according to the plan of one minute in cold water, five minutes in hot water, and repeat for thirty minutes. It must be assured that the water does not exceed a temperature of 105° F. and that the cold water does not fall below 60° F.

Whirlpool baths are extensively used in physical therapy. The hot water is given a swirling movement by the turbine effect exerted by the pump. In addition, bubbles are formed, which have a mild massaging action. Whirlpool baths find their greatest usefulness in treatment of a fracture after the cast has been removed, while the part is being prepared for massage and exercise; in the aftercare of amputation stumps; in the management of chronic infections; in softening contractures and scars and, particularly, in treatment of chronic arthritis. The whirlpool provides the local vasodilating effect of heat and the stimulating effect of gentle massage. It also affords the opportunity to carry out underwater exercise of joints.

2. Radiant heating is probably the most useful type of heating available in physical medicine. To produce radiant heat, various types of lamps and bakers are employed. Luminous sources are the most widely used because they are the most efficient. The patterns of coverage produced by the commonly used infrared generators also have been studied and evaluated; thus, the basis of selection of equipment for therapeutic uses is better than formerly it was. There is a tendency to place heating devices too far from the part that is to be heated. This is particularly true of small lamps. Moreover, the rays are maximally effective only when they strike at right angles to the skin; therefore, large pieces of apparatus, such as bakers, produce a more uniform type of heating than is produced by small pieces of apparatus.

Studies of cutaneous temperatures have indicated that maximal elevation of temperature is not reached until twenty minutes have elapsed from the time of application of radiant heat.[6] Therefore, to obtain maximal vasodilatation from the use of a given amount of heat energy, a treatment should be continued not less than twenty to thirty minutes.

3. Medical diathermy is based on the use of high frequency currents for generation of therapeutic heat in the tissues. The currents are of sufficiently high frequency that the nerves and muscles are not stimulated. The intensity used is sufficiently low that the temperature developed in the tissue is below that which would destroy it or impair its vitality. High frequency currents used in diathermy can be applied locally for the purpose of heating the superficial and deep tissues.

All modern diathermy must meet the requirements, both as to frequencies and wavelengths, of the Federal Communications Commission. Experimental data which have accumulated in recent years indicate that

the so-called microwaves of the electromagnetic spectrum constitute a good source of heat.[7] The clinical use of microwaves now is only beginning. However, clinical experience must be acquired over a period of years by careful observers before the therapeutic status of microwaves will be established.

Diathermy is useful in heating tissues when a local region is to be treated and when a relatively deep or penetrating type of heat is desired. In many instances, medical diathermy should be considered as a valuable adjunct to other forms of treatment. It can be prescribed for many conditions in which it is desirable to obtain one or more of the physiologic effects of heat. Some of the more common conditions which may be benefited by medical diathermy include rheumatoid arthritis, osteoarthritis, bursitis, tenosynovitis, fibrositis, strains, sprains, fractures and other forms of trauma. The application of diathermy to the latter two conditions is in aftercare.

Medical diathermy is unsuitable for use in the presence of all conditions in which the use of heat in any form is contraindicated. In addition, medical diathermy is contraindicated in the presence of a number of specific conditions for which other forms of heat may be useful. Some of the principal dangers appear in the following circumstances:

In the presence of *occlusive arterial disease,* local heating in any wise is generally contraindicated. However, if the patient who is so afflicted presents also an element of vasospasm, remote application of short wave diathermy, or of another form of heat, may be permissible and even valuable.

Some patients who give histories of *sensitivity to heat* react unfavorably to localized application of heat.

The danger of excessive heating of moisture that has collected beneath *adhesive tape or dressings* constitutes a contraindication to application of medical diathermy over these materials. A dry dressing may be applied over a draining lesion during the period of treatment if necessary.

In the first twenty-four to forty-eight hours after trauma to soft tissues, application of medical diathermy may increase bleeding and the tendency to swelling of an involved part. Medical diathermy is contraindicated also in the presence of *purpura or hemophilia.*

If *metallic implants* are in or near the region to be treated, medical diathermy or any type is contraindicated. However, radiant heat can be used safely over such a region.

Use of diathermy for heating the *pelvis* or other *abdominal regions* is contraindicated if a patient is *pregnant* or if *either* a *primary or metastatic malignant growth* is known or suspected to be present.

Patients who have *osteomyelitis* should not receive medical diathermy.

Microwave diathermy should not be used over *joints* which harbor products of *effusion* or over highly *edematous tissues.*

Heat of any type should be used with extreme caution, if at all, *over an anesthetic area.* If heat is to be applied to such an area, the source of heat should be an infrared lamp placed at a safe distance from the part to be heated or, if the part is one of the extremities, a whirlpool bath is safe provided the temperature of the water can be regulated.

Massage

The history of massage parallels that of the human race.[8] The Chinese

used massage for relief of aches and pains of rheumatic diseases almost 6,000 years before the development of aspirin. Japanese and South Sea Islanders adopted massage from the Chinese. Egyptians, Hindus, Turks and Persians employed massage as far back as their history is known. All classes made use of massage in both ancient Greece and ancient Rome. The purpose of its use was not always the same. To the rich it was a luxury in conjunction with the bath but to the poor it was a means of hastening convalescence. Ancient writers, Socrates, Hippocrates and Pliny all praised massage. The practice flourished in France more than 200 years ago and it became extensively known throughout Europe. Massage had its periods of prominence and its years of abandonment, but, with the advent of the Royal Central Institute of Stockholm, under the direction of Peter Henry Ling, the modern concept of massage came into being. The methods Ling introduced were not new although he tried to improve on them. He attempted to place massage on a scientific basis. Massage was introduced into this country by the pioneer neurologist, Dr. S. Weir Mitchell.

Massage is based on anatomic and physiologic knowledge and it is developed by clinical experience and aided by personal skill and practical application. It consists of certain movements of the hands applied to the surfaces of the body. Some practitioners of medicine have held that massage is either a mysterious black art, difficult to acquire, or else it is a tool of charlatans. To many, massage means merely rubbing. Even those who prescribe massage may not be fully informed of its uses and indications. Therefore, they may prescribe a therapeutic agent in a haphazard way, much as one would prescribe an unknown drug. Much harm can be done through careless or ill-advised utilization of massage.

The greatest effect of massage is exerted on the return circulation. It produces this effect by reflex action, mechanical stimulation or a combination of the two. Heavy pressure over a part is required to produce mechanical effects which assist return circulation. Such pressure also helps to stretch the intramuscular connective tissue. Massage removes debris from the skin, particularly after a part has been encased in a cast or a dressing for a prolonged time. Even vigorous, heavy massage will not remove fat deposits. It will not increase muscular strength or prevent atrophy of disuse or atrophy secondary to disease of lower motor neurons. Massage does not have any effect on the metabolic functions of the body.

Either stimulation or sedation can be effected by massage; therefore, the masseur should be informed of which is desired. The sedative type of massage is most widely used for therapeutic purposes. Stimulating forms of massage consist of percussion movements such as clapping and hacking.

There are three essential movements in administration of massage: stroking, kneading and friction: 1. Stroking massage consists of long, stroking movements wherein the hand moves slowly and rhythmically over the skin. Pressure may be light or heavy. 2. Kneading consists of wringing or compression movements. The muscles are rolled, squeezed or wrung. 3. Friction massage consists of deep, circular, rolling movements, without application of any lubricant to the surface of the skin.

Indications for massage are numerous and are based primarily on physiologic effects. In painful conditions such as early fractures, neuro-

nitis and muscular soreness, light, sedative massage is used. In treatment of most of the chronic rheumatic conditions and other chronic diseases of the joints heavier massage is employed, to secure the mechanical effects which ordinarily would be exerted by movement of muscles and by circulation. In the treatment of scars and adherent tissues, deep friction movements are used.

Exercise

Therapeutic or corrective exercise has been described by Elkins and Wakim[9] as the scientific application of bodily movements in the treatment of disease or malfunction. Skeletal muscle is richly supplied with blood. During inactivity many of the capillaries in the muscle are closed but more and more of them become open as muscular activity increases. By opening and closing of the capillaries the blood supply to a muscle is adjusted in accordance with the degree of activity.

Three types of changes can be produced in skeletal muscle by exercise: Exercise can be used *to increase tone of muscle.* An example of this exercise is the familiar muscle setting or drill routine. In muscle setting, no joint is moved but a group of muscles is alternately contracted and relaxed. Exercise can be employed to *develop strength of muscle.* This is accomplished by exercising the muscle against gradually increasing resistance. This type of exercise is known as "resistive exercise." Exercise is used *to increase the endurance of muscle.* This change is brought about by exercise of the frequent repetition type. Endurance is probably owing to the quality of the contraction of the muscles.

Exercise also will improve coordination. In general, the exercise best suited to develop this feature is the type that requires skillful and precise movements.

A skeletal muscle is said to be denervated when it is deprived of its connection with its lower motor neuron. After denervation, a skeletal muscle undergoes changes which are grouped under the term "degeneration of denervation." Atrophy or wasting is very evident in a denervated muscle. There is loss of active power. Denervation also produced changes in the electrical excitability of skeletal muscles; these are called reactions of degeneration. A faradic current applied directly to the muscle causes no response. However, the muscle responds in an abnormal manner to a galvanic current. Reduction in blood flow is characteristic of paralyzed extremities. The contraction and relaxation of muscles during repeated activity make them act as powerful pumping machines, which contribute to the free passage of blood to the various structures of the part. Without muscular activity denervated muscle will produce hypertrophy of the remaining functioning motor units. This exercise must be graded according to the number of active motor units present in the muscle. Electrical stimulation of a totally denervated muscle can be used to retard the rate of atrophy. Stoll[10] noted that electrical stimulation of denervated muscle, when properly applied, results in a stronger and heavier muscle. The stimulation, he pointed out, should be applied not only during the period of complete denervation but also well into the period of regeneration of the motor nerve. The use of electrical stimulation in the treatment of paralyzed muscle is based on its value in the re-education of muscle.

Spastic paralysis exists when there is a varying degree of paralysis of

active movement and an associated augmented resistance to passive movement: that is, the paralysis is attributable to interruption of the extrapyramidal pathways of the muscle. Under such circumstances, tone is abnormal in distribution and excessive in degree in the affected muscles. The disused muscles may undergo atrophy. The degree of atrophy, however, may not be great because contraction is continuous. The main purpose of therapeutic exercise in this condition is to retrain the muscles in order to achieve normal patterns of movement. Great attention must be paid to volitional control of these movements if spasticity is present.

The most important trend in physical medicine has been the steadily increasing employment of more effective types of exercise in treatment. There has been considerable interest in manual muscle testing and in the development of increasingly reliable and objective technics of estimating strength. In prescribing exercise it is necessary to use judgment as to what is to be accomplished. When movement of joints is limited, active strengthening and active assistive exercise, with mild stretching, are indicated. When lesions of the nervous system cause paralysis, or when other conditions produce weakness, the indication is for re-education exercises to establish new patterns of motion, or to prevent undesirable patterns of motion.

Electrotherapy

A direct, or galvanic, current, as employed in medicine, is a unidirectional, continuous current of constant intensity. Other terms used in medicine to designate this type of current are "continuous current," "constant current," and "current of low tension." This current has positive and negative polarity effects. Its primary field of therapeutic usefulness is in the introduction of ions to the tissues, or the exchange of ions within the tissues, for a definite therapeutic purpose. This procedure is known as "ion transfer." An active electrode is saturated with the required electrolytic solution, is applied to the tissues, and is connected with the positive pole if positive ions are to be introduced. The velocity of the circulating blood will limit the the depth of penetration of the ions, as well as their concentration in the tissues. The conductivity of the electrolyte depends not only on the number of ions but also on their velocity. A large number of reports have been written on the use of ion transfer. Particular attention has been given to such stimulating drugs as histamine and mecholyl chloride which have been said to have good effects; my own experience, however, has not confirmed these reports.

Electrolysis, another use for direct current, is employed extensively in dermatologic practice. For hypertrichosis, exceedingly fine needles are used to destroy the hair follicles.

Direct current is useful in the diagnosis of injuries of nerves and muscles. A complete reaction of degeneration cannot be obtained by direct current alone but a quantitative and qualitative test, as well as a polar reversal formula, can be secured. Muscles which are sufficiently accessible to be electrically stimulated can be classified as skeletal muscle with intact nerve supply, skeletal muscle deprived of its nerve supply and smooth muscle.

The types of current most often used on the service where I work are

interrupted direct current, the so-called slow sinusoidal current, the surging interrupted direct current with alternating polarity, and the induced or faradic current. For treatment of skeletal muscle with an intact nerve supply the faradic current is suitable. For treatment of a paralyzed muscle, either the interrupted direct current or the so-called slow sinusoidal current must be used. The object of electrical stimulation of muscle should be to produce a muscular contraction which simulates as closely as possible a normal voluntary contraction.

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ULTRASONIC THERAPY IN CHIROPODY

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A NUMBER of years ago, two American physicists, Loomis and Wood, discovered the physical and biological effects of high frequency sound, but use of it in therapeutic form was not accepted by the therapists in this country at that time. The use of ultra sound was by-passed by the present form of physiotherapy apparati as short wave, galvanism and later on radar, for heat therapy.

However, some of the medical research teams in physiotherapy in France and Germany accepted this new form of therapy and it was not long before reports came beaming back into the scientific journals of the effectiveness and, at times, the miraculous results obtainable. Some of the outstanding medical institutions in this country began to use and check upon the results in applying the ultra sound therapy to the various forms of pathology present, whereby satisfactory results were not entirely evident. Reports of the results obtained were so outstanding that the writer availed himself of every opportunity to check further into the possibility of its use in the field of chiropody.

Having patiently waited for six months to obtain the present apparatus,

the writer proceeded to test and use it frequently. After using this modality for the past two months with unusually satisfactory results, it is felt that there is a definite place for its use in chiropody. This is a report on the results obtained in various conditions which presented themselves for treatment.

Since a number of manufacturers of physical therapy apparati are now producing, or are in the process of putting on the market, their particular type for the medical and allied professions, and supply the doctor with the necessary information, this report shall not discuss the physical data about ultra sound phenomenon. Mention should be made that the frequency of the sound vibrations through the "sound head" applicator or transducer varies from 700,000 to 1,100,000 vibrations per second. Only sound waves of 20,000 vibrations per second or less are audible to the human ear. Ultrasonic waves because of their high frequency are therefore not audible. However, the vibrations are visible to the naked eye when the applicator or "sound head" is immersed under water. They appear as minute, multiple ripples passing through the water from the head, as much as 6 inches in length, dependent upon the output being used at the time.

Ultrasonic vibrations cannot pass through air. Therefore, a "coupling" of some sort must be used such as water or mineral oil. The former is used with the part of the body immersed under water such as the hand or foot, where the bony prominences present and the unevenness of the area treated will not tolerate the vibrations. The latter form of coupling is used on areas where there is a smooth, even surface as the plantar surface of the foot or the leg muscles.

In the passing of the sound waves through soft tissue, some of the energy given off is transformed into heat within the area. The depth of penetration is usually from 5 cm. upwards; therefore, parts previously unable to be treated with volume heating can now be treated satisfactorily. Localization of the therapy can be much better accomplished than heretofore.

Non-thermal mechanical action is also created by ultrasonic energy, which action in living tissue creates certain biological effects. There is a difference of opinion as to whether or not this non-thermal activity of the ultrasonic wave has any therapeutic activity. Personal experience has been that it does possess a form of therapeutic activity, which brings about relief from discomfort, elimination of pain in a local area and an increase in motion of a part where it has been restricted prior to treatment.

Indications for use in chiropody may be enumerated as follows: 1. osteoarthritis; 2. rheumatoid arthritis; 3. traumatic arthritis; 4. fibrositis; 5. hallux limitus; 6. myalgia; 7. fascitis; 8. metatarsalgia; 9. peripheral vascular disease; 10. arteriosclerosis; 11. sprains; 12. varicose ulcers; 13. hematoma; 14. helomatitis (inflamed corn); 15. tenosynovitis. Contraindications in chiropody have not as yet been met by the writer. For general body treatment, there are many conditions and areas which should not be subjected to this therapy until further research and study is conducted.

Generally speaking, any area which is in need of vasodilation or where there is a limitation of motion of one or more joints of the foot or ankle, this form of therapy will bring about results when other methods, previously used, have failed. This new modality seems to fill a gap, which is not closed by other forms or modalities in physical medicine.

The table is a record of the cases treated to date and the results obtained. In some of the cases, the author preceded the ultrasonic treatment by applying radar short wave heat for about 10 minutes followed by 5 minutes of ultrasonic wave. The order in which the treatments were given was from 3 to 5 minutes for the first ultrasonic treatment and then increased to 5 to 8 minutes for each subsequent treatment, until a total 15 minutes time is reached. Lasting relief occurs after the second or third treatment. It has been found that often during the first treatment, for the first 2 to 5 minutes, the patient does not sense anything. Later a

TABLE 1

CONDITION	NO. OF TREATMENTS	TYPE	RESULT
Varicose Ulcers	5	Imm.	Good 2nd.
Hallux Limitus	3	M.O. & Imm.	Good 1st.
Hallux Limitus	1	Imm.	Very Good.
Plantar Fascial-strain	1	Imm.	Good.
Traumatic Arthritis .	4	Imm.	Good 1st.
Traumatic Arthritis .	3	Imm.	Better 1st.
Myalgia-strain	8	Imm. & M.O.	Better 1st.
Myalgia	5	Imm.	Better 3rd.
Hematoma	1	M.O.	75% 1st.
Tenosynovitis Helomatitis	3	Imm.	Better 1st.
Hallux Valgus	1	Imm.	Better 1st.
Fascitis	3	Imm.	Better 1st.
P.V.D., A.S.O.—ulcer	6	Imm.	Very Good.

Imm.—immersed in a plastic tub of water
M.O.—mineral oil coupling

form of heat seems to become evident; after which time, if the treatment is extended over a longer period of time, the feeling of the vibrations of the ultrasonic waves is experienced. Until the patient senses the feeling of these ultrasonic vibrations, not much of a favorable reaction or result can be expected. It seems that when sensed, these vibrations represent the optimum treatment. The desired depth has been obtained when the patient so advises the operator.

Care should be given so as not to hold the transducer ("sound head") in one spot for any length of time. Either a longitudinal or circular stroke is applied when contact through the coupling of mineral oil is applied directly to the skin surface, or about ½ to ¾ inches away from the part when the foot is immersed in water in a plastic tub. The purpose of the use of a plastic tub is to avoid electrical short circuit or discomfort to the patient while under treatment.

At no time should the operator hold the head in a steady or still position as this may cause pain and discomfort in that area. This pain is the penetration of the vibrations to the periosteum. The output of the machine should be cut down, or faster rotation or stroke motion should be performed when this pain is experienced.

This new modality has many possibilities in giving our patients relief from discomfort. The non-thermal effect of the ultrasonic energy has a definite potential for restoring lost motion to the toes or ankle due to soft tissue changes that caused a limitation of the normal range or motion or action of these parts.

Further research in this field of physiotherapy will tend to show the

ultrasonic waves as being that something for which we have been looking for so long a time. From personal experience on these few cases, the writer suggests further research in this field. Some of the reactions seem miraculous, and only the passing of time will enable us to determine how long symptoms will subside and how soon another sequence is necessary.

Medical Arts Bldg.

TREATMENT OF HALLUX LIMITUS BY ULTRA-SOUND* CASE HISTORY

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Name – Miss A.H.D. *Age* – 67 years. *Race* – White.
Occupation – Medical technician; retired for five years.
Chief Complaint – Constant pain in the right and left great toe joints.
Duration of Complaint – "On and off" for about fifteen years. For the past six months the patient has been unable to sleep with any bed covers over her feet.
Previous Treatment for Complaint – Since the onset of symptoms fifteen years ago, the patient has had several series of x-ray therapy on the involved joints. Internal medications were also prescribed for relief of symptoms. The patient reports that everything seemed to help for a little while but "I always had to be careful as to where I stepped and I always had some pain."
Present Medical Status – Good. The patient has no active or chronic disease. The patient is quite agile and youthful for her years.
Clinical Findings – Limited and painful motion actively and passively at the first metatarsolphalangeal joints bilaterally. The right joint is affected more than the left joint. Pulses are open bilaterally. Other motions in the other joint of the foot and ankle are all within normal ranges. No skin lesions of any type are present on either foot. Patient wears "low-heeled" pumps—"I tried oxfords and they are too uncomfortable." There is very little edema at the affected joints; however, they are both tender on deep palpation.
X-Ray Findings – The roentgenological studies were done at various intervals. The first studies were done in 1938, followed by other studies in 1946 and 1955. Since 1938 arthritic lipping of bone has been present at the sites of pain, the right one having more of a bony deposit than the left. The lipping became more pronounced and limiting to motion in the follow-up studies through the years. In the April 1955 series, loose and fixed joint bodies were apparent, bony adhesions were obvious, and the joint spaces were greatly diminished bilaterally.
Diagnosis – The patient stated that she kept on bumping her toes against various objects during her working years and "apparently that's what started the whole thing." There is no history of arthritis in any other part of her body, nor any familial history of any of the arthritides. Therefore, upon the x-ray findings, clinical signs, and traumatic history, a diagnosis of Hallux Limitus was made, its cause being traumatic arthritic changes of the involved joints.
Treatment – A series of nine treatments was inaugurated. No therapy

*H. G. Fischer Ultrasonic Generator Model "6" was the instrument used.

other than ultra-sound was prescribed. The patient received 1.5 watts/cm² for eight minutes at each joint daily for five days in succession. Two treatments were given at one-week and at two-week intervals. After the first five treatments the patient was instructed to do toe stretching exercises, which consisted of standing tiptoes for a slow count of ten for ten times. These exercises were prescribed for daily performance. The ultrasonic treatments were always given under water. The patient was instructed to take 10 gr. of aspirin after the first treatment to ward off any initial pain reaction which is not uncommon after the first application of ultrasonic radiations.

Results – The results of this form of therapy in this particular case can best be presented in the patient's own words:

First visit– "I felt no better at all, the pain is still there."

Second visit– "First time I have been able to sleep with bed covers over my feet in six months–I was completely comfortable."

Third visit– "They ached a bit on arising, I could not use my bed covers."

Fourth visit– "I've had no pain at all; I've been very, very comfortable; I used my bed covers."

Fifth visit– "I had a wonderful night's rest; I never thought I could do those exercises without pain, but I did and I had no pain at all."

Sixth visit– "I never thought my feet could feel so wonderful–I've had absolutely no pain at all."

Seventh visit– "Doctor, you don't know how wonderful it is not to have to be careful as to where I step; my joints feel just grand."

Eighth visit– "I just keep stepping right along; I use my covers over my feet every night; this is just amazing."

Ninth visit– I asked the patient, since this was to be her last treatment for the time being, what she thought about her joints. She said: "Doctor, as far as I'm concerned I am absolutely cured."

After this sequence the patient was instructed to return for another x-ray examination of the parts. The radiologist's report was as follows: "No significant bony changes have occurred since the last examinations."

Summary: Ultrasonic therapy has definite values in the practice of chiropody. This case history is representative of many other chiropodical conditions which have been treated successfully with ultra-sound therapy. Among other conditions treated successfully are: bursitis, neuritis, Morton's neuralgia, ankle and phalangeal sprains, contusions, diabetic and arteriosclerotic ulcers, plantar fasciitis, tenosynovitis, fibrositis helomata neurofibrosa, helomata dura, and post-fracture pain. Ultrasonic therapy does not displace other forms of therapy we now use for the conditions listed; however, it does offer a valuable adjunct in producing more rapid, more prolonged, and more satisfactory relief of pain in many instances. The practitioner should become fully familiar with the mechanics, principles, and dosages of ultrasound before attempting to utilize it in practice. No chiropodist is being fair to himself or to his patients if he does not at least investigate the uses of this form of therapy.

The author acknowledges, with thanks, Dr. John T. Farrell's roentgenological reports.

Medical Tower Bldg.

ADVANCED PODOTHERAPY IN DEGENERATIVE PROCESSES

PART IV

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> "Much of the eccentric path traced by human progress has . . . been due to the basic law that the wrong idea sponsored by the right person has a better chance of gaining acceptance than the right idea sponsored by the wrong person. For all human beings are conservative and flock together into little, secure groups, with each group closing its ranks in the face of threats from other groups. It is a truism that to the shoemaker shoes are shoes and all are perfect, with a perfection which can be improved upon only by shoemakers. Shoemakers, therefore, are somewhat uncritical of shoes, but when a carpenter, seeing shoes with an unbiased eye, is cogently critical, his criticisms are brushed aside, however valid they may be. In compensation, however, the shoemakers will tolerate considerable eccentricity in shoemaking from one of their own professional group. For 'shoemaker' read 'physician or surgeon,' and for 'carpenter' read 'surgeon or physician.' Then look and understand the devious ways of advance in the medical arts and sciences!" (1)

This quotation is apt in view of prevailing general confusion concerning the present vital role of alpha tocopherol (Vitamin E) as a therapeutic agent. The general view still prevails that vitamin E is primarily the fertility factor in the rat pregnancy test. Today, it has a great deal to offer in certain disease entities, some of which are considered briefly in this series. Historical perspective has done more to distort the true facts and to induce false judgments and conclusions on the therapeutic uses of vitamin E than has ever been attached to any other vitamin. This distortion of the facts is succinctly stated in the following extract:

> For years after "vitamin E" was discovered in 1922 by Evans and Bishop, and independently by Sure, it was regarded as a "fertility" vitamin. Its now well-known effect on the reproductive capacity of both the male and female rat seemed to justify this appellation. However, had other test animals been used by the first investigators it might never have been recognized at all or would have had quite other properties ascribed to it. For example, had hens been used a well-defined type of encephalomalacia would have appeared in its absence. If cattle or sheep had been used, and the experimenters had had an unusual degree of persistence, myocardial failure would have perhaps become the criterion of deficiency. Had goats been used no evidence whatever of deficiency would have appeared, since goats apparently metabolize their own alpha tocopherol. Had the first studies been directed toward the blood and not the body tissues, it might have become apparent that red blood cell haemolysis was the most significant and sensitive phenomenon suggesting E-deficiency. However, fate laid the rat on the altar of physiology first—and a "fertility vitamin" loomed on the horizon. (2)

Today, cardiovascular research the world over presents overwhelming and convincing evidence in voluminous medical literature to suggest that vitamin E is the therapeutic method of choice among an ever-widening circle of informed physicians. It passed the experimental stage long ago and has firmly entrenched itself as safe and effective treatment.

In view of the importance of degenerative processes affecting the lower extremities, our profession can no longer afford to content itself with dubious and practically outmoded methods of therapeutic repression of the advance-guard signs and symptoms of the gathering storm of physiologic disintegration. The feet in particular are prone to complex local and constitutional manifestations. The true skill of practice lies in tracing down the complex relationship and seeking to repair or minimize further damage by dealing with basic systemic degenerative disturbances.

Supplemental Guide To Vitamin E Podotherapy

The tailored dosage of vitamin E in podotherapy is greatly enhanced when supported with supplements of B complex (desiccated liver). The effective therapeutic threshold of vitamin E varies with some individuals from average daily divided doses of 300 i.u. to increased requirements double this amount or to reduced requirements scaling as low as 50 or 60. These lower levels apply chiefly to cases wherein the fatigue factor is induced by low systolic pressure, and not where well-defined degenerative processes are accompanied by physical exhaustion. Low systolic pressure will be elevated to improved levels, and exhaustion will simultaneously dissipate itself in proportion, as tailored dosages of E take effect.

It is often necessary to employ high massive doses in new cases for short periods of time to stimulate healing powers by energizing phyiologic functions in local degenerative processes, especially when accompanied by acute exacerbations and syndromes. All cautions on administration of oral E therapy should be strictly observed. (Cf. Parts II and III.) When healing response in critical cases is well established, the initial massive dosage may be decreased to minimal levels to maintain steady healing progress and to prevent relapse. Always allow from one to three months to determine precise dosage at which response is steady. While high divided doses of 500 or 600 i.u. are sometimes indicated for a week or two, it is best to begin on a lower scale when in doubt, and to be governed by symptomatic response before proceeding to graded higher levels.

No side effects are experienced under E therapy, but in the event of regurgitation or gastric reactions, the oil capsules should be discontinued and hard shell (*) gel caps substituted. Indications for hard shell vitamin E caps may be pre-determined sometimes in the presence of gall bladder disorders or in cases where fats and oils are not tolerated in the digestive tract.

The Story of Cholesterol in Degenerative Processes

In recent years cholesterol has become identified with coronary thrombosis and associated pathologic changes in the vascular system. Medical research has shown that hypercholesterolemia may be the immediate cause

*Homogenized E (100 i.u. only) Schiff Labs., Jersey City 3, N. J.

of coronary clots; in these patients it may exceed normal averages of blood cholesterol by about four to one. (3) As a result of these findings, cholesterol-containing foods have been blamed for vascular disease, particularly of the heart. It is held that some unknown type of metabolic disturbance is at the root of the disorder, whereby the body is unable to handle fatty substances without undue accumulations of cholesterol.

On the other hand, cholesterol is essential to the health of the body in its ability to maintain the semi-solid consistency of cellular structures, in preserving the erythrocytes (biochemical balance), and in providing a form of tissue protection or insulation to nerve structures. Cholesterol-containing foods are high in nutritive value, since they are usually rich in vitamin A and E and the unsaturated fatty acids as well as valuable minerals. Thus, the patient with cardiac or degenerative disease, as currently treated, may be deprived of these essential nutritive elements in order to reduce the formation of cholesterol and calcium, thereby minimizing the hazards of atherosclerosis.

In order to reconcile these diametrically opposed elements in the pathologic picture, another substance—hardly ever considered as complementary to cholesterol in a biochemical sense—presents itself, the lipotropic compound commonly known as lecithin, which is normally present in all foods containing cholesterol. The combination of these two substances in foods which have not been tampered with by processing illustrates nature's antithesis to the unfavorable effects of cholesterol.

When a patient exhibits signs of a cardiovascular degenerative process in the body, he is usually advised nowadays to eliminate all meats high in cholesterol, such as liver, sweetbreads, kidney, brains, and other organ meats, as well as certain dairy products, such as eggs, butter, cream and fat-rich cheese. At first thought this advice seems reasonable. But upon further investigation, it is obvious that these foods do not prevent accumulations of cholesterol in the body. Much of the body's cholesterol is endogenous in origin. Hence, relief must be looked for in another direction.

A great variety of other than the forbidden foods are responsible for cholesterol deposits. Mentioning a few of these only, our list begins with the shortenings used in frying, in the processing of grocery products, and nearly all bakery products. The fats and shortenings used are almost always hydrogenated preparations. The processing of prepared foods, in particular, brings about a separation of their lecithin from their cholesterol. The cholesterol remains after the lecithin has been destroyed.

The prime function of lecithin in food is to emulsify its cholesterol content in order to facilitate free movement of its particles in the bloodstream. In the absence of this emulsifying agent, the cholesterol amasses too high a specific gravity, with the result that it cannot move along freely through the lumen of the blood vessels. This mechanical block then becomes the trigger factor that may set off a sudden heart attack, bringing about a partial occlusion, perhaps a thrombus. Other pathologic factors in the system may contribute to this occurrence, depending upon the general condition of the individual at the time.

In the presence of degenerative processes affecting the vessels of the lower extremities, it becomes necessary to warn such patients to reduce

(Continued on Page 37)

JOURNAL

OF THE

NATIONAL ASSOCIATION of CHIROPODISTS

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BY THE NATIONAL ASSOCIATION OF CHIROPODISTS

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Address all communications intended for publication, matter relating to advertising, business or subscriptions to the Editor.

PRESIDENT'S MESSAGE

Now THAT SUMMER is over, children getting back to school and our practices getting into high gear, we can begin to be concerned with the future of this Association. First, I want to make it clear that the N.A.C. is not a one-man organization, but rather, functions as a group, through your Executive Council and the various committees under its direct supervision.

Should any matter, problem or situation arise, you may contact any of your National Officers, who will see that the matter is handled by the appropriate committee, and in that way, we will avoid harmful duplication and needless confusion.

Secondly, I most emphatically condemn the eager-beaver attitude of some of our individuals, who side-step organization and do things by themselves. Through such unwarranted action we have lost more in a month's time than we have been able to gain in over ten years. I refer especially to the subject of the Resolution from the Michigan Chiropody Association, regarding the Joint Commission on Accreditation of Hospitals. Such bungling on our part shows we are not now ready for benefits of any organization, and not until first we show that we can function as an organization. So – out with the old – on with the new. Let's get going.

RALPH E. FOWLER

HOW MUCH DO YOU APPRECIATE THE UNIQUENESS OF YOUR KNOWLEDGE?

THERE is one mental block peculiar to many chiropodists that prevents them from accepting or appreciating fully the role they are capable of achieving in the domain of health services. Too many accept the concept that the tissues of the foot are like those of the rest of the body. This is true only in the sense that all biological material has a common denominator.

Frederick Wood Jones has said that the foot is the most uniquely human organ of man. Its tissues vary not only grossly but microscopically. Its physiological functioning is different even when the tissues are similar. It also happens to be phylogenetically the newest.

The skin of the sole of the foot is unique skin. This type of skin is physiologically a friction surface. This type of tissue is found elsewhere only in the palms of the hands in man. In all mammalian life the only area, aside from palmar and plantar surfaces, where this is found is on the under surface of the prehensile tail of the spider monkey.

This skin has fine regular ridges. It has no hair follicles and no sebaceous glands. It has a very marked stratum lucidum not found in other epidermis. This uniqueness is not only true of its morphology but is found also in its physiology. Here we have a friction surface which has been adapted to serve as a pressure transmitting area. And this has occurred fairly recently in man's evolution.

In the upper limb the muscles of the forearm move the hand and its parts. In the lower limb, during locomotion or standing, a great deal of muscular energy is acting on a foot fixed to the ground.

These things we all recognize; yet why do many of us believe so dogmatically that the foot is no different from the rest of the body? This philosophy has permitted us to accept, and some to vicariously enjoy, the statement made on occasion by medical officialdom that chiropody is a "duplication of services" offered by medicine.

Perhaps this is because we have permitted our education to be a direct extension of medicine, or borrowed too freely from it. We must not see only the similarities but we must appreciate the differences. It is in the differences where our services are not now duplicated.

Surely no man in the medical services, after four years of study on the body in its entirety, expects to have the knowledge and technical skill that the chiropodist acquires in his four years. The doctor of medicine does not presume to know more about the teeth than does the dentist.

Since knowledge is power, this knowledge that the foot has much uniqueness can give us the power to accept fully, and not lightly, the role of caretakers of the nation's foot-health and comfort.

X-RAY THERAPY IN CHIROPODY*

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Traverse City, Mich.

THE USE of X-ray therapy has gone through three definite eras. In the beginning, when it was found that X-ray had an effect on living tissues, those who attempted to use it were very optimistic as to its use. There were many who used it promiscuously on any and every thing. As time went on results were not obtained as desired and many harmful effects caused the practitioner, as well as the public, to become very pessimistic as to its value. For years the use of therapy was not desirable, but as the study and research went on, an era of realism developed when the results of the work of the men who attempted to make a realistic approach to the subject became known. It took many years for the practitioner, as well as the public, to accept X-ray therapy for what it is today.

For those practitioners not too familiar with this modality for therapy, it is necessary to refresh the memory as to the equipment that should be used.

X-RAY MACHINES. 70 — 100 kilovoltage produces a soft ray
Up to 200 kilovolts, medium hard rays
Above 200 kilovolts, hard rays

It is necessary that the X-ray machine be calibrated. This should be done by a Certified Radiation Physicist and it will be calibrated for: 1. Kilovoltage 2. Milliamperage. 3. Time. 4. Distance.

It is necessary that the equipment have two meters, voltage and milliamperes. Those machines which are preset cannot be calibrated properly and therefore should not be used for therapy.

X-ray used in small doses has a drying, sedative, analgesic effect. In large massive doses it has an inflammatory and irritating effect.

BASIC DOSE. The basic unit for treatment is an erythema dose which is equivalent to 1 skin unit or 350 roentgens.

CLASSES OF TREATMENT

1. Hyperintensive: any treatment employing more than 2 E.
2. Intensive: any treatment employing less than 2 E.
3. Subintensive: any treatment employing more than 1 E.
4. Fractional: any treatment employing less than 1 E.

FREQUENCY OF TREATMENTS

1. Hyperintensive doses or Intensive doses of 2 E., no oftener than once a month.
2. Subintensive doses may be repeated in two weeks.
3. Fractional doses may be repeated in one week.

PRECAUTIONS

1. Check patient for sensitiveness to ultraviolet light radiation or actinic rays.

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*Lecture delivered at the Midwest Chiropody Conference held in Chicago, Illinois, March, 1955.

†Formerly Professor, Department of Orthopedics, Chicago College of Chiropody.

2. Be sure patient does not suffer from blood or organ disturbances, especially tuberculosis of the lungs, diabetes or anemias.

3. Do not use X-ray therapy prior to taking a good history of the patient's general health.

4. Use a shield to protect surrounding tissue on all dosages above ½ E.

FUNGUS NAILS. Cultural or microscopic verification is usually necessary to support a clinical diagnosis before treatment is instituted.

Antiparasitic remedies should not be employed two weeks previously, during, nor for two weeks subsequent to roentgen therapy.

The shielding of the area surrounding the nail to be exposed should be done with lead .015 inch thick.

VERRUCAE. Employ 2 E. and repeat dose in one week's time. In twenty-one days it will be observed the verrucae simply fall off. If a third treatment of 2 E. does not work, other methods of treatment should be instituted.

INFLAMED BURSA. Use ½ E. to alleviate pain and reduce swelling (by drying). The area surrounding the bursa should be shielded.

HELOMA DURUM (painful). Use ½ E. dose to alleviate pain. Will not eliminate heloma durum. The area surrounding the heloma durum should be shielded.

HYPERIDROSIS. Roentgen therapy is not only effective in combating excessive sweating in localized areas, but its use constitutes the only certain method of permanently curing the affection.

The treatment should proceed cautiously and it should be interrupted before sweating has entirely ceased. Roughly the treatment should be stopped when there has been about 75% improvement.

After a rest of two or three months, if there is still too much sudoriferous activity, more treatment may be given.

As a rule, the reduction of sudoriferous activity is gradual. Generally fractional treatments (75% unfiltered once a week) without interruption; up to sixteen treatments if necessary.

The sex, age and complexion of the patient must be taken into consideration. It is preferable to treat each foot separately.

BROMIDROSIS. Bromidrosis may be general or regional. It is usually associated with hyperidrosis. Regional bromidrosis can be usually relieved and at times entirely cured by irradiation. The technic is the same as for hyperidrosis.

DERMATOPHYTOSIS. The acute symptoms usually subside in a few weeks under fractional treatment, especially when combined with local, soothing and very mild antipruritic remedies. Occasionally the affection is permanently cured. Very often after the acute symptoms subside no further improvement is noted. Recurrences are common. A majority of cases will do better under conventional therapy than under radiation. It has been found that if the eruption will yield to X-rays it will respond to a few small doses.

If the eruption does not disappear as a result of such treatment over a period of a month or six weeks, it is unlikely to be favorably influenced by further treatments.

ECZEMA OF THE FEET. Very often such eruptions will be permanently

cured as the result of such treatment. These respond, on occasion, to a few fractional treatments.

In hyperkeratotic and fissured eczema of the soles of the feet, of obscure or unknown etiology, this type of eczema will disappear promptly under fractional irradiation. Some cases are very refractory, some will not improve and recurrences are common.

PRURITIS. It is a well-established fact that irradiation will, as a rule, arrest the itching in such affections as eczema, lichen planus and neurodermatitis.

TREATMENT OF SMALL LESIONS. The normal skin around circumscribed lesions should be protected by a piece of lead foil or other suitable material. Ordinarily a thickness of 1/32 or 1/64 inch of lead foil will provide adequate protection. The shield should be of sufficient size to intercept all the oblique rays. Care should be taken to center the anode directly over the center of the lesion.

CONTRAINDICATIONS. 1. Ulcerated conditions. 2. Senile keratoses. 3. Psoriasis.

KEEPING RECORDS OF TREATMENTS. Keep a record of all treatments given, to whom, when, dosage, interval elapsed since previous treatment, health of patient, response to therapy, etc.

X-RAY THERAPY FACTORS

Age — the skin of an aged individual is definitely less sensitive than that of an infant. There is also a noticeable difference between adults and children.

Sex — the skin of females is perhaps slightly more sensitive than that of males.

Texture — a thin fine skin is likely to be a little more susceptible than is a thick coarse skin.

Circulation — a skin that is pale or anemic will react less readily than one that possesses a good circulation. The most sensitive skin in this respect is one that is hyperemic or congested.

Color — blondes are usually more susceptible to irradiation than are brunettes. The negro skin is the most resistant.

Location — the extensor surfaces are more resistant than the flexor surfaces. The flexures are very sensitive. The thin skin over the extensor surfaces of the articulations reacts more readily than does that of the immediate vicinity. The palms and the soles are less sensitive because of the thickened horny layer.

IRRITANTS. Irritating and stimulating chemicals applied to the skin before, during or shortly after irradiation may markedly increase the effect. After irradiation the skin is hypersensitive to irritants. Skin that has been subjected to fractional treatment will tolerate irritants of mild or moderate strength in about a month.

SKIN ERYTHEMA FACTORS. Factors regarding therapy: 1. Milliamperage. 2. Voltage. 3. Time. 4. Distance (anode skin distance).

THE FOLLOWING SHOULD BE KEPT IN MIND

Filtered X-rays — reaction is deep.

Unfiltered X-rays — comparatively superficial.

Skin toleration varies with age, sex, amount of blood present, location,

complexion and the time intensity factor. Tissues will tolerate more radiation if given slowly than if given rapidly.

SKIN ERYTHEMA DOSE. Radiologists, in general, use as a unit the skin erythema dose, i.e. the amount of radiation which will redden the normal skin.

TISSUE DOSAGE. The purpose of radiation therapy is to produce some change in tissue activity, by the action of the rays on the cells.

123½ East Front Street

ADVANCED PODOTHERAPY IN DEGENERATIVE PROCESSES

(Continued from Page 31)

drastically certain classes of foods high in cholesterol, from which the lecithin has been removed by processing. This does not include eggs, for example, in spite of the high cholesterol content, the fact being that eggs are not processed and hence contain the normal amount of counterbalancing lecithin. Any natural food that has not been tampered with contains the precise amount of protective lecithin needed and, therefore, cannot increase the cholesterol content to dangerous levels in the bloodstream.

Restaurant food, and even home cooking, can be in the same category as prepared foods bought at grocery stores. However, patients may be put on their guard to avoid fried foods, shortenings (such as Crisco), synthetic fats, salad dressings, all refined oils, margarine, and to cut down on all commercial bakery products. Where patient cooperation is lacking, it is advisable to administer supplements of lecithin and vitamin B complex in the form of desiccated liver. Soya-lecithin, extracted from soybeans, is the best form of lecithin, since its contains the natural B complex fractions of inositol, choline, and methionine required by the body to maintain biochemical balance against cholesterol, and to prevent hepatic damage from fatty infiltration and other degenerations. The lecithin dosage advised is from 1000 to 5000 mgs. daily.

A word of warning is necessary concerning lecithin as a food supplement when vitamin E is administered as the primary therapeutic agent in degenerative processes. Lecithin is a phosphatide or unsaturated fatty acid, and any such fatty compounds destroy the active value of vitamin E, especially when taken simultaneously. Hence, lecithin should be taken betwen meals and at bedtime in order to allow vitamin E to pass into the duodenum after digestive action is completed. Vitamin E is, therefore, best administered a short time before meals.

Although lecithin has been added to many processed foods to give smooth blending and consistency and to prevent rancidity, thus spreading the fat globules evenly throughout, it is easily destroyed by heat in cooking and thus becomes an inert substance. For this reason lecithin is an essential food supplement only when taken orally as an independent substance which has not been exposed to processing or overheating.

Reports on Lecithin Therapy

Dietrich (4) described the results of the administration of lecithin and vitamin E to diabetics. This brought about a steep drop in insulin

requirements, accompanied by considerable improvement in the diabetic diathesis. Several hundred psoriasis patients have been treated with lecithin alone by various researchers, among them Gross and Gesten, with outstanding results. Many cases of skin diseases, including keratoses, infantile eczema, scleroderma, seborrheas, acne, keloids, severe eczemas, and fat-deficiency skin-bronzing have responded dramatically or showed improvements, as reported by Pottenger. (5) His contributions deal largely with nutrition. Concerning the administration of lecithin in skin disease, he states: "The effect of processing cereals, with the accompanying loss of minerals and the vitamin B complex, has received much attention. However, the loss of the important fats in the processing of our vegetable oils and our cereals has not received due consideration. The removal of the fats would appear to be as deleterious as the removal of the water-soluble parts of the germ."

In the series of skin diseases reported by Pottenger, lecithin therapy was supported by a high protein diet, with liver (high in lecitin to counteract its cholesterol), and the addition of raw brain. One should not rest assured that the elimination of the major cholesterol-containing foods solves the problem of cholesterol intake. There remains a host of low-content cholesterol foods, from which the lecithin has been destroyed or extracted by processing. The sum total of these lesser foods, although not rich in cholesterol, neutralizes the gain achieved by avoiding the major cholesterol-containing foods. The need for low-heat-produced lecithin as a supplement thus becomes obvious.

Patients in Alameda County Hospital were fed egg-yolk fats yielding the equivalent of 36 eggs daily, at the conclusion of which study there was no rise in blood cholesterol. (6) Although egg yolk is very rich in cholesterol, it is equally rich in lecithin, a fact easily overlooked when denying patients the highly nutritive value of whole eggs.

Many years ago Keston and Silvowitz (7) reported feeding lecithin to rabbits on a high cholesterol diet, with the result that cholesterol did not collect in the bloodstream and thus inhibited hardening of arterial walls. Duff and Payne (8) reported experiments with laboratory animal in which instability, rather than the volume of cholesterol intake, was responsible when arteriosclerosis ensued. Cholesterol "instability" refers to the caking or conglutination, in the absence of lecithin, rather than a dispersion into finely divided particles.

(to be continued)

130 West 57th St.

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TREATMENT STANDARDIZATION FOR IONTOPHORESIS

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IONIZATION TREATMENT is one of the finest modalities known for various ailments of the lower extremity. Such drugs as histamine, iodine, silver nitrate, copper sulphate, cortone, procaine, etc., can be extremely useful in the care and treatment of such problems as ringworm, edemas, pain, bursitis, fibrositis and many others found in chiropody.

Yet one of the faults in this field is the failure to set a definite treatment pattern so that the operator knows at all times what to expect, and not stating "doses" for conditions to be treated. A common statement made by authorities is to treat the patient's tolerance for 10 to 20 minutes or to observe the skin for the desired appearance, at which time they feel the desired treatment has been given.

In over 16 years of practice, during which time the writer has used a great deal of iontophoresis, he has come to some practical conclusions concerning the use of this modality. Having received no satisfactory reply when questioning the various men in the field, personal observation and experimentation has evolved a definite treatment pattern so that in a patient with a given problem, the operator can judge what reaction will occur. The patient can also be told what to expect and control of the treatment is such that the patient's tolerance is no longer used *per se* for measuring the desired effect.

We know that histamine will create a wheal reaction on the skin or in the skin, if injected. We know that depending on the amount used we will develop a greater or smaller reaction. Also, histamine, if left on the skin for a certain time, will create a reaction that can be seen, not necessarily of treatment value to the patient. One minim of histamine solution injected subcutaneously will create a greater wheal. This reaction is also of no value in the treatment of the patient. Conversely, the patient that is apprehensive will certainly not allow the operator to regulate the galvanic current up to a degree commensurate with good result. By the same token, the patient that is able to tolerate more electric current will certainly tend to get a much better treatment, and even be given more treatment than is necessary for the desired effect.

With the above in mind, treatment is begun with histamine on the positive pole in this manner: using 100 milliampere minutes as a guide, a reading of the patient's tolerance was taken and whatever the milliampere reading, it was multiplied with the number necessary to equal one hundred. Example: if the patient tolerated 10 milliampere minutes, it was administered for 10 minutes to give a reading of 100 milliampere minutes. If the patient's tolerance was only 5 milliampere minutes, then that individual was given 20 minutes for a treatment of 100 milliampere minutes.

Observations were recorded and it was found that for ringworm or tinea, best results were obtained by starting with 100 milliampere minutes, and raised up to 150 milliampere minutes treatment, with silver nitrate or copper sulphate solutions. Experience proved that the patient's tolerance at 2 milliamperes given for 10 to 20 minutes did not give satisfactory results. Treatment under 100 milliampere minutes also was

not as satisfactory as when 100 milliampere minutes or more were administered. In this problem, particularly where we find open areas of epidermis which will not allow the current to be raised very high before the patient's tolerance is reached, we can now, by controlled factors, give adequate dosage for the condition and get the desired result.

In chronic edemas of the ankle, wherein all general health problems have been ruled out, cortone ionization from the positive pole, starting at 100 milliampere minutes with subsequent treatments of 120, 130 and 150 milliampere minutes, will give excellent results in reducing this edema and if followed through, a lasting result may be obtained.

It was found that iodine introduced into the tissue with KI solution, medine ointment, or iodex, for 100 milliampere minutes gives a satisfactory desired effect. Reduction of inflammation, relief of pain and better functioning joints were obtained.

Under the heading of Bio-electricity, Glasser's Medical Physics states that "skin resistance is high and variable." This has been found to be true in using the polygraph lie detector. At Johns Hopkins Research Center, a Dermometer has been used to test the electrical resistance of skin and has been found to be 4,500,000 ohms and more. Therefore, how can we take a patient's tolerance as a factor in giving any type of electrical therapy? It is also known that tactile nerve sensation is certainly different in each individual, aside from the mental acceptance by the patient to the type of therapy.

Using this rationale, we can treat better, more specifically, with many drugs from the appropriate pole. Obviously, we must know which pole to use for the drugs employed. In the same fashion in using the positive or negative current alone for its particular effect, the dosage should be similarly regulated so that when information is disseminated, a basis for comparison can be established between one operator and another. In this way standardization for this type of treatment might be effective.

It is felt that with this specific procedure will come a more positive attitude in treating patients. If a patient can tolerate enough of the current to be able to take a good measured dosage, then certainly one can say to the patient that results can be obtained in a matter of weeks. If a patient can only tolerate 2 milliamperes, it will be necessary to give a patient 50 minutes of treatment for the desired effect. The operator can tell the patient that achieving results will take longer because actually only a half treatment can be given in 25 minutes. This brings specificity to the doctor, to the patient and to the end results in which both are vitally interested.

A standard of dosage for medical galvanism has been proposed. It is suggested that practitioners and clinicians, starting with this premise, evaluate and report their results that more satisfactory data can be compiled.

25 E. Washington St.

URGE NON-MEMBERS TO JOIN THE N.A.C.

CHIROPODY IMPLICATIONS OF GERONTOLOGICAL RESEARCH

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DR. NATHAN W. SHOCK in his book, Trends of Gerontology[1], makes an appraisal of where we now stand in respect to research in this very important field. He also assesses the potential facilities now available for research and attempts, lastly, to formulate a tentative program for expanding our knowledge about aging.

Aging falls into several major categories:

1. The social problems of the aging population.
2. The economic problems of the aging population.
3. The psychological differences ensuing therefrom.
4. The physiological and biological changes.
5. Pathological changes.

In indicating the important trends in the field, Dr. Shock has contributed greatly to the creation of a national institute of gerontology for expanding our knowledge of our aging population. This is very much in keeping with our needs if we are to formulate comprehensively accurate methodologies in the solution of the problems brought to light. Two questions which constantly recur are:

1. What do we most need to know at the present time?
2. How are we most likely to attain the knowledge?

Various centers of research are working on these problems and surveys indicate that an overwhelming proportion of this work is being carried on within university departments. Methods to coordinate research would appear to be the important first step to systematize our facilities now available, as well as our future research in the various areas of gerontology.

Unfortunately, few investigators go into the study of gerontology with the primary purpose of engaging in research. Therefore, it is necessary to attract young men and women who will devote themselves to this work. The ideal place to start something of this nature is on the undergraduate level. This calls for the instituting in the curricula of the universities and colleges the course material required. However, this is by no means sufficient, because there is little point in training individuals in ways of research, if future research facilities and economic security cannot be assured.

Investigations that are of scientific value require considerable time for adequate preparation, study, analysis, and verification. This means that long-term financial support becomes the most pressing need. This is particularly true of research in the biological, physiological, and pathological areas. Setting up community programs for experimental purposes becomes a colossal undertaking. Where this is done in universities the recognition of long-term study must be included in budget plans.

Community programs require local surveys to determine the needs of the aging and to catalogue facilities available to satisfy such needs. There is a very great need for trained personnel in carrying out this work. Also there is a need for an exchange of pertinent information among different centers in studying the problems.

What can be done about coordinating research? First, objectives must be determined. These should include the employment situation, the social problems, and the various medical category problems, among others.

For example, studies must be made of the nature and degree of employment at various ages and analyses made of the retirement, voluntary and compulsory, with the economic (and other) implications. Social individual needs and group requirements must be studied. Health maintenance will always be a major issue. Psychological problems become increasingly important in later years. Education of the aging as well as the middle-age population should not be neglected. All of these areas and related ones must be as completely coordinated as possible for exchange of information, services, and programs, etc.

In 1940 the United States Public Health Service, Unit on Gerontology, made a survey of research that was being planned by investigators throughout the country.[2] Of 114 investigators who reported plans for specific research projects in the field of aging only 15—responding to questionnaires in 1948—were actually working on these problems. Later discussion with many of these investigators indicated that the causes which were responsible for the curtailment were unfavorable circumstances of budget, personnel, and laboratory space.

Secondly, in coordinating research, a unified, organized program must be developed which will be based on standards of education with minimum requirements that will insure research of a scientific nature. Evidence of the need for this may be obtained from an analysis of the fifty-seven original papers published in the Journal of Gerontology by American workers during the years 1936 to 1948.[3] Of these fifty-seven original papers only twenty-seven contained observational data, while thirty were discussions expressing a point of view, recommendations, etc. Therefore, more than half of the published work did not relate to scientific studies, but to ideas, plans, and hopes of various people.

Although there is no lack of ideas for research in the field of gerontology, there is a definite need for specific, coordinated programs to be drawn up which will be of primary importance, be feasible, and be part of a coordinated continuity which will lead to better organization, concepts, and accomplishments. There is need for a uniformity of research. There is need for a comprehensive and universal methodology that will facilitate expression and useful exchange.

Finally, in coordinating research there should be a central area of direction and responsibility such as a National Institute of Gerontology that will take it upon itself to organize, delegate, and implement a universal research program. The functions of this organization should include fund raising, personnel training, material acquiring and education of the general population as well as of the aging. In addition to administrative duties, research, education, teaching, and services should also be included. With such a centralization of responsiblity and authority, gerontology could certainly expect greater and more effective strides in its much-needed accomplishments. Chiropody, like gerontology, has similar problems. In many respects the position of chiropody in the sun has been consolidated due to its growth in this past generation. The population and the professions have gradually been educated to the need for our services and recognition has been our just reward. But have

we been taking stock of ourselves? Have we made an inventory of our assets and our liabilities? Are we satisfied with our schools and their products? Are we still progressing at our previous accelerated rate, or have we slowed down to a point of stagnation? Are we in a state of limbo and not even aware of it?

We, who are closest to the throne of chiropody—in practice or in the schools—would be the first to be injured by its fall, or even by its tottering, should such an eventuality occur. It, therefore, becomes necessary for us to periodically study our status objectively and to take such steps as will insure our well-being. As with gerontology, two questions also arise for us:

1. What does chiropdy most need to know at the present time?
2. How are we most likely to obtain that knowledge?

The first question is simple. We must know everything we can possibly learn that will improve our profession. We must constantly devise ways and means to study and promote, to revise and reform, to review, correct and rectify as many facets of our work as we can see and reach. We learn primarily from research. How much of this are we engaged in? Is it being properly conducted, adequately supervised, and responsibly validated?

The second question is also simple—to state an answer. Do we have an over-all plan to study our problems and a commission, or other body, to implement solutions which may be arrived at? A profession cannot live on its past laurels only. It must grow. If we wish to be recognized as free to do the best for the public we must be able to do the very best. We must accomplish corrections and enrichments to our chosen field, or we will be untrue to the trust which we have taken upon ourselves. With our over-all plan we can study ourselves and come to conclusions about our needs.

But the implementation is the keystone upon which a successful resolution will depend. For example, if research should become one of the major goals of such a body, are our schools equipped to include methodology as a course of study, which will be effective insofar as teaching the student scientific methods that will stand up for follow-up research and testing? This has no reference to school projects by qualified scientists but does pertain to the student himself. How accurate are our journals scientifically? Are we for the most part discussing scientific studies or are we writing for the most part about ideas, plans and hopes of various people? Are the practitioners in the field—who have a constant source of case records from which to draw—able to compile their applied research in a manner that will stand up to the scrutiny and tests of others? If not, why not? Is our profession not old enough to get together and not only bury differences but constructively formulate plans that will take these and many other related and pertinent factors into account? Cannot our schools all send representation to an association conclave to discuss our status and improve our lot intellectually? It would seem as if our own censors were involved. Students and practitioners are alive! They have ideas and must have means of expressing these ideas. Teachers, too, must have living thoughts. A school must not only impart information, it must impart it imaginatively. It must foster creativeness. If this is not done then it loses its major function.

As in gerontology, a unified, organized program by an organization centralized for responsibility and authority could well help solve most of our stagnation problems. As one example, it could effectively enlist the financial aid of foundations for research. But primarily, it could coordinate our assets.

725 Scotland Rd.

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CLINICAL STATISTICS

HILL makes the observation that clinicians subconsciously use statistical methods although they sometimes reject statisticians and all their works. They state that because human beings possess inherent differences and are not alike, as bricks, they do not lend themselves to statistical method. Yet when confronted by a given type of case these clinicians will use treatment they had found previously to be effective in case or cases with similar characteristics. Fundamentally, this is simply the application of previously obtained statistics. It indicates that human beings commonly react like other human beings, thus are not necessarily completely unique. Dangers in such applications are not missed by the author. He carefully points out that a few such observations, accurate in themselves, may not take into proper consideration the laws of chance. One physician may observe a method of treatment giving brilliant success in three successive cases. Another, equally accurate in his reporting, may use the identical method with three dismal failures. Hill makes the pertinent remark that "the medical journals, euphemistically called the literature, are cluttered up with conflicting claims—each in itself perfectly true of what the doctor saw, and each insufficient to bear the weight of the generalization placed upon it." Hill quickly explodes the stiff theory that you need a hundred cases for statistical worth. He says that if you treat a single case of acute leukemia with a new drug and the patient gets well you have made an observation of great statistical importance. This is based on the simple fact that human beings, unique though they may be, are in some ways just as alike as bricks. In the matter of acute leukemia there is remarkable similarity. They all die. Thus the one case to get well must be recognized by the statistician as of vital importance. On the other hand, if you give a drug to a case of rheumatic fever and the patient gets well you have proved nothing. Some cases do get well without any treatment whatever. This demonstrates the fact that human beings have unique qualities. Their response to rheumatic fever is variable and individual. The statistical method here needs more cases. Thus there is no pat number. Likewise, there should be no pat thinking.

Editorial in Northwest Med.

THE TREATMENT OF OSTEOARTHRITIS

JOHN G. KUHNS, M.D.
Boston, Mass.

OSTEOARTHRITIS is among the commonest of the disabling conditions found in patients after middle age, and it is frequently looked upon as a part of the degenerative process which accompanies aging. Evidence of its presence is observed in the x-ray pictures of the joints in all patients after the age of fifty, but only about 10% of these individuals will have sufficient disability to require treatment. This number will increase until at 70 years of age 50% will have disability. Symtoms will vary from mild stiffness to constant pain and limitation of motion when the weight-bearing joints are affected.

Since we do not know the causes of osteoarthritis a number of terms have been used to describe this condition, the commonest terms being hypertrophic arthritis, degenerative joint disease and arthrosis deformans. Some of the changes in the joints are the result of aging and attrition. A number of other factors have been discussed as possible sources of the osteoarthritis. Oft-repeated, mild trauma can lead to more rapid development of osteoarthritis. Postural strains and obesity exert a mechanical influence on the progression of the disease. Severe disalignment of the articular surfaces, after severe injury to, or disease of a joint is secondary osteoarthritis. Infection seems to play no part in the development of osteoarthritis, but symptoms are more severe when infection is present. Endocrine disturbances are possible etiological factors and are of particular importance when symptoms appear at the male or female climacteric.

The pathologic changes develop slowly, and no definite time can be given in any case as the date of onset of the disease. The first observable change is an alteration in color in the articular cartilage from glistening bluish-white to a dull yellowish-gray. The elasticity of the cartilage decreases and small areas of erosion appear on its surface. Microscopic examination will show loose strands of collagen with dead cartilage cells. The hyaline cartilage may degenerate over the entire surface, or it may be only on scattered patches. Often the bone becomes denser beneath the eroded cartilage. About the margins of the joint there is proliferation of cartilage which quickly changes to bone, forming nodes or spurs at the edges of joints seen in the x-ray pictures. With further development of these spurs motion in the joint becomes limited, but ankylosis never occurs. Thickening of the synovial membrane may occur later from mechanical irritation. Degeneration of the intra-articular structures is often seen after many years.

The symptoms are usually not severe and disability develops very slowly. There is little if any general change. The patient is well nourished, the blood cell count shows no change and the erythrocyte sedimentation rate is normal. There is usually no heat or redness and little muscle spasm. The commonest symptom in this disease is stiffness, particularly in the muscles about the involved joint. Motion that is sudden or prolonged can lead to excessive pull or overstretching of the ligaments about the joint. It has been suggested that the stiffness is the result of degenerative changes in the muscles or to a fibrositis, the result of impaired circulation.

The next commonest symptom, pain, may result from overstretching of ligaments or from impingement of soft tissues at the margins of the joint. The articular cartilage and the bony spurs about the joints have no sensory nerves, but the synovial membrane and articular capsule are richly supplied with sensory nerve endings. In osteoarthritis, synovial fringes are readily pinched between bony spurs and articular surfaces. Less commonly, loose bodies in the joint or a displaced, degenerated semilunar cartilage cause the impingement. In a few cases the cause of pain is irritation at the neural foramina by bony proliferation encroaching upon the nerve roots. This pain is referred over the distribution of that nerve root.

Crepitus and swelling and limitation of the range of motion in the joint are uncommon features. Any limitation of motion develops so slowly the individual is not aware of it. It results from muscular spasm or contracture and from the bony overgrowth about the joint. It is seen in most severe form in the low back or at the hip joint.

Since we do not know the causes of osteoarthritis, treatment must be directed to the relief of these symptoms. Comfort is the chief aim but in many instances function also can be improved; in many instances all symptoms disappear. The type of work can be made less strenuous, particularly rapid, repetitive work. Faulty posture should be corrected as fully as possible. The economic and social worries of these older people should be lessened and the environment made pleasant and stimulating. Simple measures are usually adequate in the treatment of osteoarthritis.

There is no specific medication. Vaccines and injections of gold salts have been of no avail. Cortisone and hydrocortone (Compound F) have given only temporary relief and have not changed the articular pathology or the deformity. Phenyl butezone (Butazolidin) relieved pain only. For pain salicylates or aspirin usually suffice. Repeated use of narcotics is never indicated. If the pain is severe and continued one should look for some other disease, particularly metastatic cancer.

Upbuilding measures are usually not required since the patients are in a good state of nutrition. The diet should usually be decreased in calories. Many of these patients are overweight; for these a reducing diet, high in protein, moderate in fat and low in carbohydrate should be prescribed. Potassium iodide, liver extract and vitamin B have their proponents. Occasionally, dilute hydrochloric acid is helpful. Vitamins are of value if the diet is deficient in these substances, a common occurrence in the aged. Hormones should be given if a lack is demonstrated. Thyroid and estrogen or testosterone are beneficial in some cases.

Many of the symptoms can be relieved by physiotherapy. Almost always pain and muscular soreness will subside with rest. If symptoms are severe, the patient should have bed rest for a few days. If one joint is very painful, a light plaster cast is indicated for a week or two. A bandage or a light splint for the inflamed joint is usually all that is required. In some cases a corset, brace, or spinal jacket is required, even for the remainder of the patient's life.

Exercises are prescribed to correct muscular weakness, stiffness and contractures and to improve the general posture and the alignment of the joints. The exercises about the joint begin with mild contractions of the muscles and progress to exercises against resistance. As full a range of motion should be regained as is possible without pain. Such

exercises should be continued for at least a month since improvement occurs very slowly. Postural exercises must be continued for a much longer period in order to obtain any improvement.

Massage is helpful over the muscles adjacent to the sore joints but is not to be given over the joint itself. Massage is of particular value in the aged but exercises are preferable to massage in the robust patient. A hot tub bath or shower for 10 to 15 minutes is beneficial to many patients. Such hot baths can be debilitating and should not be taken more than twice a week.

Warmth in all forms, including warm rooms and warm clothing contribute to comfort. Heat to the joints, to be effective, should be applied for one-half hour two or three times a day—as hot as can be borne comfortably. Liniments or rubefacients applied after heat prolong the sense of warmth and are mildly sedative as well.

X-ray treatment is of value in the large painful joints and in the spine. Its action upon the joint or the disease is unknown. About 100 r are given twice weekly until 1000 r have been given. No harmful effects have been observed from this dosage; swelling subsides and pain decreases.

Proper shoes which help maintain the balance of the body are helpful. The patient should sit in a straight-back chair. The bed should be firm, non-sagging and only one small pillow should be used unless there is difficulty in breathing. Traction is helpful particularly in osteoarthritis of the cervical spine. Crutches are used temporarily when there is much damage in the lower extremity and help greatly when there is much pain on weight-bearing.

Surgery has a definite application when pain and disability are not relieved by the measures already mentioned. The aim of treatment is comfort rather than rehabilitation. Surgery should not be considered when the general condition of the patient is poor or if it offers little improvement in the patient's comfort and movement in the joint. It is used more often for the relief of pain than for increase in motion. Surgery is employed more frequently in lower extremities, as the joints which show severe disability most often are the knee and the hip. The objective is to make walking and sitting more comfortable. At the ankle and foot, surgery is occasionally required for severe, rigid valgus in osteoarthritis. Usually a wedge osteotomy is employed to secure a good position for weight-bearing. The same procedures are carried out for hammer toe or hallux valgus as in static disabilities of the feet. Proper shoes and supports under the arches of the feet usually relieve symptoms sufficiently and surgery is not required often.

In the spine one frequently observes irritation of the nerve roots with radiating pain. Rest and traction relieve most of these. If they persist a myelogram is usually performed to aid in determining the location and extent of pressure upon the nerve root. Such pressure is relieved as simply as possible. In both the cervical and lumbar regions disintegration of the intervertebral discs sometimes accompanies osteoarthritis. If this produces pressure on a nerve root, removal of the disc substance is indicated.

Surgery is well tolerated in these older patients if electrolyte balance is maintained and blood loss is replaced. The anesthesia employed is usually spinal. The patients move about in bed or preferably sit up the day following operation, to reduce the hazard of venous and pulmonary complications.

Summary

Osteoarthritis is one of the commonest disabling conditions found in older individuals. The bony spurs about the margins of the joint are the mechanical cause of the pain and stiffness found in this disease. Since we do not know the causes, treatment must be symptomatic. Treatment should be both general and local for the inflamed joints. In general treatment, overweight is corrected, clothing and houses should be warm. Often, work must be slower and less vigorous. There are no specific medicines for osteoarthritis. Rest and heat to the joints always relieve symptoms temporarily. If joints sprain readily some form of joint brace may be required. Surgery may be necessary if symptoms are not relieved by conservative measures.

Clinical Medicine.

HYDROTHERAPY

THERE are certain facts which justify the use of baths for therapeutic purposes. One-third of the entire blood content of the body can be contained in the peripheral circulation and therefore it is easy to understand that by a regulated course of baths at varying temperatures the resources of the skin may be so stimulated and reinforced that the sensitiveness of the patient to changes in external conditions may be materially lessened. The contrast bath is an example of this. . . .

The thermal effects of immersion baths at varying temperatures are well known. . . . Then there is the mechanical effect which is of such vital importance in therapeutics. A body immersed in water is buoyed up by a force equal to the weight of water it displaces and the thrust upon the surface of a body immersed varies in direct proportion to the depth of the immersion. This buoyancy is used to enable still and paralyzed joints to be moved actively through a greater range of movement and with less discomfort to the patient than is the case when the limbs are not so supported. The mineral content of the water exerts its influence. . . . All highly mineralized waters are . . . of great value in assisting the rehabilitation of a disordered locomotor system.

It is this rehabilitation of the locomotor system which has been the main concern of hydrotherapists throughout the ages and is still their major problem today. The disease syndromes grouped under the generic term "Rheumatism" have . . . been treated by some form of hydrotherapy from earliest times and still respond to such treatment. Hydrotherapy acts on the patient as a whole and not particularly on an affected joint and the necessity for considering the patient as a whole and not as made up of disorganized joints is impressed upon us by the work of Selye and Hency and their collaborators. If we accept the theory that joint lesions are the result of stress whether that stress be due to mental, physical or bacterial causes, then we see what an important place hydrotherapy must take in protecting the patient against such stresses.

W. Yeoman, M.D., Proc. of Royal Soc. Med.

MANAGEMENT OF CHRONIC LEG ULCERS

CHRONIC ulcer of the leg is an all-inclusive term describing chronic ulceration confined to the lower part of the leg. The condition is an extremely common one and may occur with or without the presence of varicose veins.

The three basic types of ulcer described by A. M. Boyd, M.B., R. P. Jepson, M.B., A. Hall Ratcliffe, M.A., and S. S. Rose, M.B., are the varicose, the postphlebitic, and the arteriosclerotic.

The *varicose ulcer* is always superficial, never penetrating the deep fascia. The site is remarkably constant, occurring on the medial side ot the leg, 2 or 3 inches above the medial malleolus. Large feeding veins usually are visible entering the ulcer. The veins may be invisible because of cellulitis but are palpable.

The skin around the varicose ulcer shows stasis pigmentation. Edema is absent or confined to a slight swelling of the ankle. Varicose eczema results from scratching. Infection is seldom heavy.

The *postphlebitic ulcer* always penetrates the deep fascia. The most common location is above the medial malleolus, as with varicose ulceration, but the area involved is usually greater and occasionally may extend completely around the leg. Superficial varicose veins are seldom seen and consequently neither stasis nor pigmentation occurs. Gross edema and cellulitis usually appear. A fibrotic base to the ulcer delays healing and infection is heavy. The underlying periosteum is sometimes involved.

The *arteriosclerotic ulcer* also penetrates the deep fascia, often spreading rapidly to expose muscle and tendons. The ulcer usually arises traumatically and therefore is seen over the anterior and anterolateral surfaces of the leg. The region becomes heavily infected and the tissue becomes gangrenous and foul-smelling and tends to slough off. Manifestations of circulatory deficiency are apparent in the limb as a whole.

The fundamental factors producing and maintaining chronic leg ulcers are infection, venous stasis, and arterial insufficiency.

Chronic ulceration of the leg results from poor personal hygiene and neglect. Early attention to varicose veins with scrupulous care of the unhealthy skin in the ankle region can prevent ulceration. The increasing knowledge of the management of deep phlebitis should bring a decrease in such ulcers.

The actual healing of an ulcer is accomplished by (1) abolition ot infection, (2) reduction of edema, (3) correction of vascular deficiency, and (4) skin grafting and possible excision.

Infection is eradicated by fomentations, daily soaks, moist Eusol dressings, and 12% sodium sulfate. When reasonable cleanliness is achieved, wet dressings of dihydrostreptomycin are used, to which the vast majority of organisms in chronic leg ulcers are sensitive.

Reduction of edema is accomplished by elevation of the limb, preferably with a wedge mattress.

Incompetent superficial veins are treated by obliteration of the feeding veins. Multiple ligation, retrograde injection of sclerosants, or stripping is used for the remaining superficial varicosities. Deep venous insufficiency may be combated by ligation of either the popliteal or superficial femoral

veins. Lumbar ganglionectomy is done if arterial circulation is insufficient. The first 3 lumbar ganglia are removed.

Rapid and stable healing is best ensured by early grafting, which is done as soon as the ulcer is clean. Where much fibrosis forms at the base or surrounding the ulcer, excision followed by grafting is preferable.

The only logical method of preventing recurrence is by eradicating the causative factor which, in these ulcers, is circulatory deficiency—arterial, venous, or a combination of both. Sympathectomy is valuable in proved cases of arterial insufficiency by acting to develop collateral circulation. In addition, sympathectomy removes normal vascular tone, thereby improving the nutrition to the skin in all cases.

Angiology 3:207-215

THE FATHER OF MEDICINE

In history, Hippocrates can well be called the Father of Medicine. He was a contemporary of Socrates, Aristotle and Plato. . . . He gave to Greek medicine its scientific spirit and its ethical ideas and was the first to recognize clinical inspection and observation. Instead of attributing disease to the gods or other fantastic imaginations he founded the bedside teaching method which has been the distinctive talent of all true clinicians. He possessed a high sense of dignity and lofty ideals of the medical profession and was a master in compiling accumulated knowledge of the preceding centuries. His permanent place in medicine is represented in the Hippocratic oath, for it is the earliest and still remains the most impressive document in medical ethics. . . . He has been called the master physician of all time, and his opinions became virtually law on medical subjects. Osler in one of his essays said that every physician ought to read some of Hippocrates every year to learn how to observe his patients. The greatness of Hippocrates is that he kept medicine on an equally high level with the work of the great lawmakers, philosophers, writers and artists of that era.

D. C. Balfour, M.D., Can. Med. Assn. Jour.

TREATMENT OF POSTPHLEBITIC SYNDROME

Chronic postphlebitic ulceration of the lower extremity develops from ambulatory venous hypertension caused by incompetent valves in the deep, superficial, and communicating systems of veins, the result of previous deep venous thrombosis.

A radical operative procedure is recommended by Robert R. Linton, M.D., as the only means of ridding the patient of the sequelae of deep vein thrombosis of the lower extremities—edema, pain, varicose veins, skin pigmentation, stasis dermatitis, chronic induration of the subcutaneous tissues, and chronic ulceration.

Of great significance is the fact that these sequelae do not develop while the deep veins are occluded by thrombi nor does the syndrome occur after femoral vein interruption for treatment of the acute thrombotic state. The lesions appear when the deep venous system has become patent again after canalization of the thrombus, but without functioning valves.

Most of the undesirable sequelae of the thrombotic state, including

ulceration, disappear if the venous pressure is reduced in these extremities by elevation of the limb above heart level. The scarring of the subcutaneous tissues, pigmentation, and varicose veins of the superficial system tend to persist.

Temporary Treatment

Chronic postphlebitic ulceration must be healed before definitive surgery can be performed. One method of healing ulcers is to put the patient to bed, elevate the extremity above the level of the heart, and apply moist saline dressings three or four times daily, but this treatment is not practical because of the great length of time required in bed.

A better method is ambulatory, utilizing compression bandages to reestablish venous return from the legs. The patient can continue work and needs to visit the doctor only every two weeks for change of dressing. The leg is painted from the toes to the knee with an alcoholic solution of resin, and a thick gauze dressing with white petroleum jelly is placed over the ulcerated area.

The leg is then bandaged from toes to knee with a 15-yd., 4-in. wide gauze bandage. The gauze becomes intimately adherent to the skin and, because of the tacky resin solution painted on the dressing, does not slip and cause excoriation.

A 4-in. wide, 3-yd. long elastic adhesive bandage is then applied very tightly, beginning above the ankle and covering the ankle, heel, and foot to the base of the toes. The bandage is carried up the leg to the level of the tibial tubercle and back down to the ankle, always wrapping from the inside of the leg toward the outside.

Ambulation is encouraged after bandaging.

Surgical Treatment

For best results the surgical therapy should (1) remove all large superficial veins in the subcutaneous tissues, (2) sever most of the communicating veins, especially on the inner side of the lower leg, (3) interrupt the long column of blood in the valveless deep venous system by ligation of the superficial femoral vein just distal to the junction with the profunda, and (4) aid lymph flow from the subcutaneous tissues in the skin by exercising some of the deep fascia of the lower leg.

After operation, as long as the extremity has a tendency to swell, the patient wears a heavy-weight, two-way stretch elastic stocking with a heel.

R. R. Linton, M.D., Angiology, 3:431-439.

WEATHER AND THROMBOSIS

CHANGE of weather apparently predisposes to postoperative clotting in deep veins of the leg. Dr. Michael Newton correlated weather records with 66 cases of thrombosis observed in the University of Pennsylvania Hospital, Philadelphia, in one year and found that phlebothrombosis developed most frequently the day after passage of a meteorologic front and usually coincided with a rise in barometric pressure and a fall in temperature and in relative humidity, sometimes occurring after a rain. Thrombi formed more often in spring and fall than in summer and winter, when meteorologic fronts are less apt to occur. Vascular tone in the extremities is increased by emotion. Climate may affect emotion and thus help produce vasospasm after surgery.

Am. J. Surg. 81: 607-611

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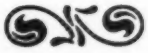

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Paul R. Kline, M.D., of New York University and Arline Caldwell, M.D., of New York Medical College, New York City, describe results of treatment in 31 cases observed in private practice and hospital wards.

Preliminary patch tests made with the base and Panthenol cream produced no sensitization of normal skin, and therapy for periods as long as one year caused no reactions.

Response was best with hypostatic eczema, varicose eczema with or without ulcers, nummular eczema, chronic eczema due to fungous infection, atopic eczema, generalized infantile eczema, dermatitis venenata, contact dermatitis, and leg ulcer after thrombophlebitis.

Fair to good effects were noted in cases of arteriosclerotic ulceration, scleroderma, recurrent psoriasis, occupational dermatitis, traumatic ulceration on the scalp of a premature infant, diaper rash, senile pruritus, dermatitis with ichthyosis, and ulcer after frostbite.

New York State J. Med. 52:1141-1143

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Cancer Research 11: 238

EARLY AMBULATION

EARLY ambulation after surgery means getting out of bed as soon as possible, usually in the first 24 hours. There are some exceptions, of course, but when the procedure is used, it is simple. With the assistance of nurses and often the attending physician, the patient is moved to the side of the bed where he is helped to a sitting position with the feet swung over the side of the bed. Next, the patient steps to the floor and then sits in a comfortable chair, usually for just a few minutes. The next attempt is of longer duration. On each attempt the patient is encouraged to breathe deeply to prevent pulmonary complications, such as blood clots and pneumonia. Early rising speeds up the circulation, which greatly lessens the formation of dangerous blood clots and improves circulation to the operative wound, with quicker healing. Other advantages include improved urinary bladder and bowel function, with lowered incidence of vomiting, distention, gas pains and constipation.

Educational Committee, Illinois State Medical Society

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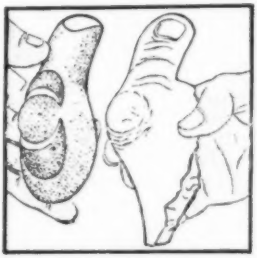

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STIPULATIONS

FEDERAL TRADE COMMISSION

Agreements Between Federal Trade Commission and Promoters of Various Products

FOSTER'S Wonder 30 Minute Corn and Callous Remover. — This is sold by Stomar Products Company, Kansas City, Mo. In November, the concern and its advertising agency stipulated with the Federal Trade Commission to cease representing that the product promotes healing, and disseminating any advertisement which did not warn that care should be taken not to allow the preparation, full strength, to remain too long in contact with the corn, lest its corrosive action extend to the underlying tissue.

(Medicinal Preparation)

S. W. WARD, trading as Ward & Sons, 10534 Vincennes Ave., Chicago, selling a medicinal powder designated "Dr. Gray's Foot Bath Powder," has stipulated with the Federal Trade Commission to cease representing that the preparation is used by doctors, hospitals or sanitariums; that it is the result of scientific research or a study of foot ailments; that statements in his advertising have been made by or are quotations from the literature of the U. S. Public Health Service, or that the U. S. Public Health Service or any other agency of the Government has endorsed or recommended the use of the product; that a package of the powder has a greater value than the price at which it is regularly sold or that its price is limited as to time; or that the powder draws poisons from the feet, has curative or healing powers or destroys germs.

He also agrees to discontinue representing that no other preparations are as effective in the treatment of athlete's foot, itching, broken skin, open sores and blisters; that its use will prevent athlete's foot, or that the coloring of the skin caused by the powder destroys infection.

ORGANIZATION NEWS

NEW HAMPSHIRE

THE NEW HAMPSHIRE Chiropody Association held its first annual meeting September 13, 1955, in Concord, N. H.

New plans and ideas were formulated in order to improve community relationship and the first local group accepted was the Manchester Chiropody Society of the New Hampshire Chiropody Association. All groups will be subservient to the state and national association and will work toward the betterment of the profession.

The resolution to adopt a three (or more) man chiropody board was defeated.

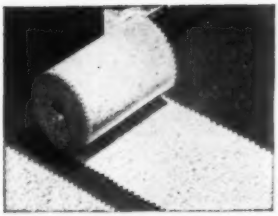
PENNSYLVANIA

North Philadelphia Division

THE REGULAR meeting of the North Philadelphia Division of the Chiropody Society of Pennsylvania was held at the Hotel Essex on September 13, 1955.

Dr. Samuel Katz gave a lecture on the "Use of Physiotherapy in Chiropody." Twenty-five-year membership certificates were presented to Drs. Howard Seyfert and William Smith.

ATTEND YOUR N.A.C. AND REGIONAL CONVENTIONS



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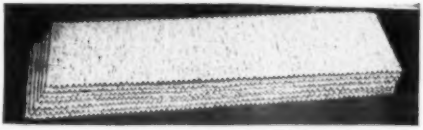

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MICHIGAN

THE QUARTERLY meeting of the North Eastern Division of the Michigan Chiropody Association was held on Sunday, September 11, 1955, in Saginaw at the Bancroft Hotel. Approximately 90% of its members were present.

Dr. Al Bass gave a lecture on foot balance. The next meeting will be held at the Kellogg Foundation in Lansing.

VIRGINIA

THE VIRGINIA Association of Chiropodists will hold their annual meeting at the Williamsburg Lodge in Williamsburg, Va., on November 19-20, 1955.

A cocktail party and dinner meeting will be held on Saturday night, November 19th. The scientific program on Sunday, November 20th, will feature Dr. Abe Rubin, who will lecture on "The Etiology of Mechanical Foot Disturbances," a discussion of the factors which aggravate and produce these disturbances with case histories to illustrate these problems and their management.

ILLINOIS

AT THE MEETING of the Illinois Chiropody Society which was held Wednesday, September 21, 1955, at the Congress Hotel in Chicago, Ill., Mr. Sam Wolff of the Satisfactory Shoe Company discussed the relationship of chiropodists and shoe men and the solution to the problems of shoe fitting. He supplemented his talk with a film on shoe manufacturing and lasts and further discussion was presented on shoe construction, shoe fitting and lasts.

Dr. Earl Zack presided over the meeting in the absence of Dr. Jack Stern, the Scientific Chairman.

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Dr. Carl Mathew Roberts and Dr. M. H. Trent were admitted to membership by the voting body.

A check for the sum of $100.00 was presented to Dr. Peter N. Varzos, Chairman of the N.A.C. Nomenclature Committee, to place in the Nomenclature Fund for the development of the Standard Chiropodical Nomenclature. The Illinois Chiropody Society has pledged $100.00 annually for the next four years to the Nomenclature Fund to aid the program of completing the standardization of medical nomenclature for chiropody.

Dr. George Guenzler was commended for his efforts as Legislative Chairman. His constant vigilance and efforts prevented any state senator or representative from introducing legislation which would limit the scope of chiropody practice here in Illinois.

Mr. Marvin Eisenberg, 5425 Dorchester Ave., Chicago, has been appointed Midwestern Representative of the NAC Insurance Agency, and Assistant to the Insurance Counselor of the National Association of Chiropodists. Mr. Eisenberg is licensed as a General Insurance Broker in Illinois.

A.S.C.R. PROGRAM

The American Society of Chiropodic Roentgenology presents herewith the names of its lecturers who will conduct the graduate course in Roentgenology. The course commenced on October 2nd and terminates on December 11th. It will be held on alternate Sundays at the Hotel Sheraton-Astor in New York City. The subjects are as follows: Unsatisfactory Radiographs, Dr. Louis Kurzrock; Exploratory

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D. V. Anderson, D.S.C., *Dean* **L. C. Numbers, D.S.C., *Registrar***

1327 N. Clark St., Chicago 10, Ill.

Radiographic Examinations, Dr. Joseph W. Gilden; Positioning of the Foot for Roentgenography, Dr. Ralph E. Sansone; Physiology of Bone, Dr. Elmer F. Hartford; Diseases of Bone, Drs. Irving Yale, Vincent A. Jablon, Raymond K. Locke; Pathomechanics, Dr. Ralph E. Sansone; Podopediatrics, Dr. James E. Bates; Analysis of X-rays, Dr. H. Burton Le Vine; Roentgen Findings of the Arthritic Diseases, Dr. Nathan T. Lambert; Fractures and Dislocations, Dr. Bernard D. Sherman; Orthodigital Roentgen Problems, Dr. Morton M. Polokoff; Surgery, Dr. Nathan Cheifetz.

Because of the many inquiries received from areas throughout the nation, the ASCR is considering the advisability of conducting such a graduate course in other areas. All requests should be addressed to Dr. Joseph W. Gilden, Community Bldg., Fairfield, Conn.

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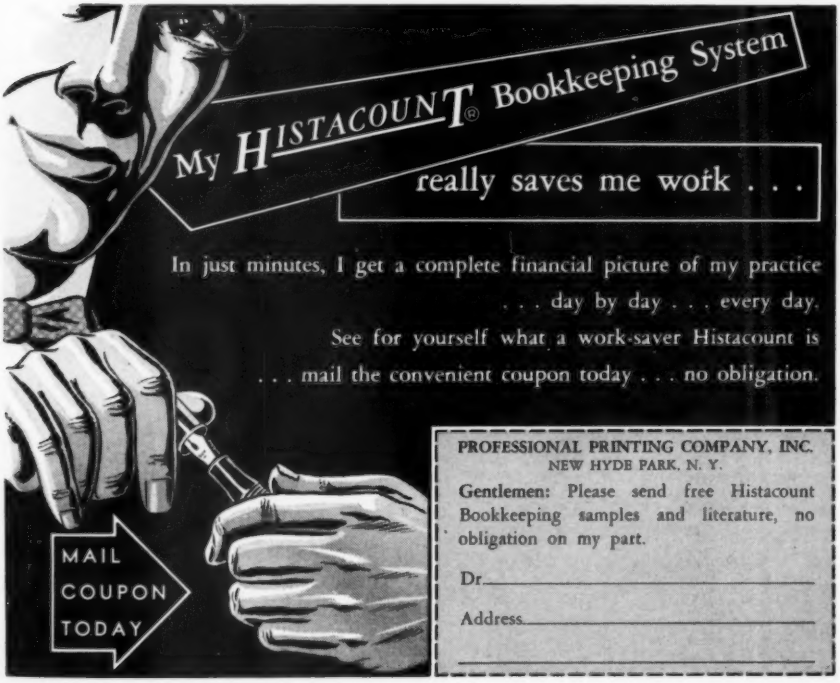
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CONVENTION DATES

1956

NATIONAL ASSOCIATION OF CHIROPODISTS

Chicago, Ill.,
August 1-9, 1956
Drake Hotel

PODIATRY SOCIETY OF THE STATE OF NEW YORK

New York City, N. Y.,
March 2-4, 1956
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Atlantic City, N. J.,
April 12-15, 1956
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DEATHS REPORTED

Dr. Louis J. Abbot
Worcester, Mass.

LEGISLATIVE AND LEGAL NEWS

ARKANSAS GRANTED NARCOTIC PRIVILEGES

IN AN OPINION by the Attorney General, narcotic privileges were granted to Arkansas. He stated that "a chiropodist is a 'physician' within the meaning of the Ark. Stat. (1947) 82-1001 (2) and as such is authorized to prescribe, administer and dispense narcotic drugs under Ark. Stat. (1947) 82-1007 (Uniform Narcotic Drug Act) within the limits of their professional practice only."

RAILROAD RETIREMENT BOARD RECOGNIZES LICENSED CHIROPODISTS

THROUGH THE OFFICES of the legal counselor of the Michigan Chiropody Association, James J. Lieberman, the following opinion was obtained: United States of America Railroad Retirement Board "now recognizes licensed chiropodists as qualified to execute statements of sickness for benefits under the Railroad Unemployment Insurance Act."

Please do not ask for the names of classified advertisers in the JOURNAL who use box numbers. We accept such advertisements with the understanding that this information will not be released. Address replies or inquiries to the box number shown in the advertisement. They are promptly forwarded to the advertiser.

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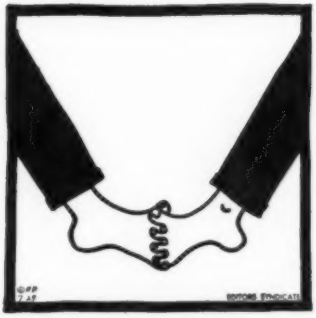

"Delegates Meeting at Chiropodist's Convention"

WHEN old "Doc" Kisco, the Chiropodist who has his office in my boarding house, saw this, he applauded for 10 minutes and presented me with his latest pamphlet entitled *"Make Friends With Your Feet."* In it he outlines 4 Basic Rules for care of the pedal extremities. (1) Never cut your toe nails (this forces you to wear larger, more comfortable shoes and also prevents you from walking). (2) Take a hot mustard foot bath every day (this soothes the instep and stains the feet a light brown, saving you quite a few dollars on socks). (3) Always wear roller skates (if you feel conspicuous wearing them carry a hockey stick). (4) Don't take a job as a Mail Man!

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RECENT GRADUATE with a New York license desires part time or full time associateship in an established Podiatrist's office. Write 902, c/o National Association of Chiropodists, 3301 16th St., N.W., Washington 10, D. C.

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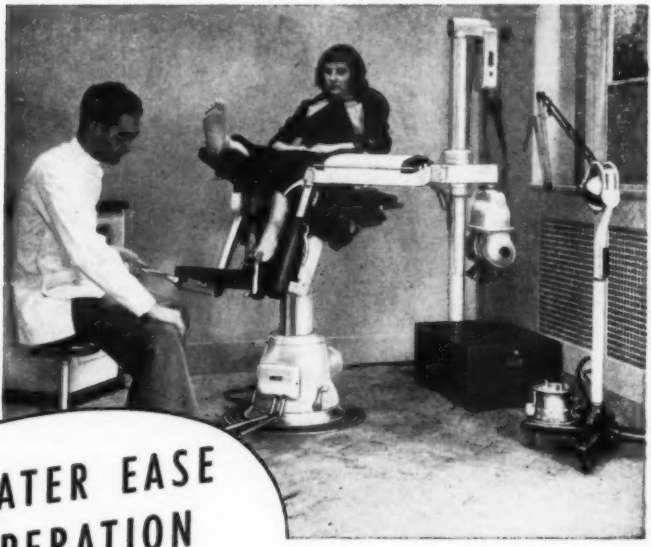

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